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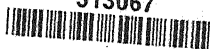
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OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

ECONOMIC AND SOCIAL CONDITIONS OF THE AGRICULTURAL CLASSES

Broadcasting as an Instrument of Instruction and Propaganda in Rural Life.

However useful broadcasting may be in towns, it must be regarded as essential in country districts. There is abundant justification for describing it as essential; in the first place the small rural centres are usually without secondary schools, libraries or other means of self-education for the population, while broadcasting provides a form of simple, varied and attractive instruction. Through this means farmers, and in particular small farmers, can become acquainted with better farming methods and ways of protecting their own interests; further it offers in places where there are no places of amusement, not even a small cinema, entertainment of an educative and attractive type; and finally it may serve effectively to counteract the drift to the towns.

If however these objects are to be attained, a public character must be given to rural broadcasting so that all concerned may without difficulty and if possible without expense enjoy the transmissions arranged expressly for them.

Educational broadcasting, including agricultural, has made remarkable progress in a number of countries over the last few years, but except in Russia it does not appear that much trouble has been taken to find the best way to attract the majority of farmers. It is obviously almost useless to broadcast for the benefit of agriculturists, unless there exist receiving sets widely distributed in the country districts at points where people can readily gather.

Generally speaking, in all the divisions of the rural commune there is a primary school. If a receiving set is installed in each school, not only can the children listen to transmissions made for their benefit, but also the adults at fixed days and at fixed times can do the same.

Listeners will be attracted by the novelty, but the transmissions should be not only interesting but also amusing, the serious discourses being interspersed with short stories, up to date news, music, etc. The desire to listen must be stimulated and it is essential especially at first not to weary the listener with over long communications. Persons who regularly attend informative lectures might be admitted in the evening to listen to plays, concerts and operas.

The broadcasting talks to children might well include certain agricultural subjects, as the school children of today will be the farmers of tomorrow.

Subjects relayed for farmers might in the first place be the price report of commodities and the weather report with the forecasts for the next day and for the week, and subsequently for each region and in each season useful hints in connection with the weather forecasts.

It is not intended to set out here a detailed programme of the lectures that should be broadcasted for farmers. The essential point is to inspire them with a love of the land and the desire to become acquainted with the best means for utilising its resources; they need instruction in the principles of rural economy, the right procedure for obtaining the highest profit from any crop, the most efficacious measures for control of parasites, the hygiene of the dwelling house and stable, stock raising, proper use of fertilisers, etc. All this should however be imparted in a simple and interesting manner, readily intelligible by everyone, and in addition replies should be given to special questions addressed by the farmers themselves to the broadcasting company. Such replies may be so phrased as to arouse interest in all farmer listeners. In this way broadcasting may really assist in the material and moral improvement of the conditions of life of agricultural workers.

The following notes represent information obtained from the International Broadcasting Union at Geneva on the development of agricultural broadcasting in certain countries (1). It will be observed that the agricultural service is variously organised in the different States. In some it is entirely under the management of broadcasting undertakings, in others by these in collaboration with private or official organisations, and in others it is under Government direction.

Germany. — For agricultural questions, the societies are closely in touch with the Chambers of Agriculture in the different provinces or districts. These in consequence of their relations with the Ministers of Agriculture of the different German States and with the *Reichsministerium für Ernährung und Landwirtschaft* are favourably placed for precise gauging of the requirements of listeners in the country and of the present facilities for instruction.

The representatives of all the groups concerned form an advisory committee which meets regularly once a month.

All the German stations transmit a meteorological report three to five times a day and every day agricultural information of every kind: prices of agricultural products, sowing conditions, crop forecasts, etc.

Twice a week the *Deutsche Welle* broadcasts lectures dealing with questions and problems of agriculture, the listeners being mainly small land owners. Experience has shown that these lectures should be suited to main seasonal periods of farm work.

Special lectures are also given on a variety of subjects: e. g., on wheat growing, etc. Sometimes a series of lectures is organised on the same subject so as to enable listeners to become acquainted with a variety of opinions on the same subject.

(1) "Radiodiffusions agricoles". Informations en possession de l'U. I. R. au 14 mars 1932. Union Internationale de Radiodiffusion. Série n° 3040, 14 mars 1932.

The following agricultural talks are repeated regularly:

The Farmer's Hour.

Lectures on agriculture.

Lectures on horticulture.

Review for the use of lovers of garden flowers.

Out of the total numbers of broadcasting talks or lectures, 12 per cent. are devoted to agriculture.

The course organised by the *Deutsche Welle Ges. m. b. H.* on agriculture, three times a week, deal with the following subjects:

Broadcasting in the service of the farmer - Soil and conditions for plant growth - Decomposition and putrefaction - Water and its influence on plant growth - The different kinds of soil and their influence on plant growth - Agricultural machinery and cultivation of lands - Land drainage - Manuring of crops - Stable manure and stable refuse - Preparation and utilisation of stable manure - Green manuring - Nitrogenous fertilisers - Phosphatic and potassic fertilisers - Employment of chemical manures - Liming and its effects - Seeds and supply of sound seed - Sowing, the right time, the right depth and method - Attention to sown land by manuring and cultivation - Frost, acidification, putrefaction of seeds - Control of weeds - Harvesting - Grasslands - Pasturages - Potato growing - Cultivation of pulse crops - Forage crops - Vegetable growing - Fruit growing - Methods within the scope of any farmer for increasing field crops - Agriculture and capital engaged - Invested capital (*Grundkapital*) and working capital - Farm work and the head of a family farm - Considerations on which the farm management should be based - Alternation of kinds in sowing - Spring cultivation - Methods of herd management within the reach of every farmer for increasing live stock yield - Growing and utilisation of forage on the farm - Rearing of calves - Feeding of cows in milk - Feeding of slaughter cattle - Care of sows and the rearing of piglets on the farm - Method of fattening pigs - Importance of the different branches of stock farming in relation to economic life - Poultry keeping - Collective purchases and sales - The necessity of keeping accounts even on a small family holding - Final talk.

Austria. — A committee consisting of representatives of agricultural experiment and educational institutions and of agricultural authorities meets to fix broadcasting programmes.

The Austrian organisation broadcasts regularly once a week a "Farmers' Hour" for the small farmers. The following were among the subjects of these talks in 1929:

Importance of building up foods - Parasites injurious to trees - Technical methods in agriculture - Crop results in 1928 - Nutritive capacity of soils in Austria - Utilisation of peat for agricultural requirements - Satisfactory and unsatisfactory kinds of fruits - Gardening and fruit growing at Klosterneuburg - Cultivation trials and their significance as regards plant physiology - Damage done to cereals during the winter season and means of prevention - Weed control - Protection of cereal growing in Austria - Development of the dairying

industry in Austria - Groping on small holdings - Destruction and utilisation of carcasses - Frost damage and means of prevention - Treatment of stable manure according to the new methods - Place of the horse in the mechanical age - Instruction of girls and young women in the country - Method of preventing contagious diseases among live stock.

From time to time a talk is broadcasted for gardeners, stock farmers, etc.

There is also a programme of agricultural broadcasting for schools in Upper Austria.

Belgium. — Under the auspices of the *Institut National de Radiophonie de Belgique*, the Department of Science and Arts organises broadcasting for schools, the programmes carried out by the staff and the apparatus of the I. N. R.

The preparation of the programmes and all arrangements are in the hands of a Committee formed by the Ministry of Science and Art. The chairman of this Committee is the Directeur général de l'enseignement et des sciences, and among the members are delegates of the I. N. R., and of the inspecting and administrative bodies both of State and of independently managed education, thus representing the various types of instruction.

Radio-belgique does not organise agricultural broadcasting, but confines itself to issuing a meteorological report daily in the "Journal parlé" at 8.15 a. m.

A foreign organisation, La Radio-Catholique, for which the Radio-Belgique transmits, includes an agricultural communication of 10 minutes weekly on its programmes.

Denmark. — The Danish company works in close collaboration with the agricultural organisations which proposes the lecturers. It broadcasts an agricultural lecture fortnightly as well as monthly lectures dealing with vegetable growing and poultry keeping; typical subjects are: Pasture management - Plant diseases and their control - Growing of turnips - Stock farming and its importance for the community, etc. These lectures last for 27 minutes.

Details of the organisation of the talks are in the hands of a special broadcasting Committee appointed by the Danish agricultural associations.

Spain. — The Spanish broadcasting organisation arranges a popular course on agricultural problems.

On Saturday afternoons and evenings communications are made as to the situation in the principal agricultural centres of Spain, crop conditions and market tendencies. This information is given by qualified agricultural experts.

Every day the meteorological reports are given.

Finland. — The limited company *Suomen Yleisradio* broadcasts every week the prices of agricultural products, fertilisers, etc., as well as information on the situation of the agricultural markets.

Two lectures per week deal with questions of agricultural technique and economics. The former are organised by the Central Union of Agricultural

Societies (*Maataloussenrojen Keskusliitto*) which groups 19 agricultural societies and 15 special agricultural societies: the latter by the Central Union of Agricultural Producers (*Maataloustuottajan Keskusliitto*) which safeguards the interests of farmers on the economic side. These lectures deal with prices, co-operation, the market of agricultural products, agricultural credit, etc.

Occasionally the Finnish broadcasting organisation itself arranges lectures dealing with agricultural questions of the day. These are delivered by those of its directors who represent the more important farmers' organisations.

France. — A National Federation for broadcasting in country districts was founded in August 1927 with the object of popularising the employment of wireless telegraphy among the rural populations of France and her colonies. It publishes an illustrated review, *La Radio-Agricole*.

This Federation has taken the initiative in broadcasting:

(1) A daily agricultural communication by Radio-Paris (6 p. m. to 6.30 p. m.) including the following items:

(a) Meteorological information and weather forecasts, transmitted by the Office National de Météorologie. This communication is followed by notes on farming in accordance with the indications given by the Office.

(b) A series of notices of interest to farmers and frequently taken from the agricultural papers: Shows and competitions — Reports of agricultural societies — Legislative texts — Colonial questions — Advice to exporters, etc. This section is in the hands of M. Blanchard, Ing. Agron., director of the agricultural department of Seire-et-Oise, treasurer of the *Société Nationale d'Encouragement à l'Agriculture*.

(c) A daily talk of some minutes devoted each day of the week to a particular branch of the subject;

Monday, talk on agriculture by M. Leconte, professor at the *Institut National Agronomique*;

Tuesday, talk on animal husbandry by M. Voitellier, professor at the *Institut National Agronomique*;

Wednesday, talk on viticulture by M. Marsais, director of works at the *Institut National Agronomique*;

Thursday, talk on horticulture by MM. Lecollier and Marcel, professors at the *Ecole Nationale d'Horticulture* at Versailles;

Friday, talk on rural economy and legislation;

Sunday, various questions.

(d) Quotations and daily official bulletins of the Halles, the Bourse, the trade in fertilisers, according to official information, broadcasted by the *Préfecture de Police*.

(2) Daily comments on the official meteorological report with the object of interpreting the full significance to the farming class.

(3) A weekly bulletin broadcasted by Radio L.L.; Radio Sud-Ouest, Radio-Agen, Radio-Toulouse, Radio-Beziers, Radio-Nîmes, Radio-Lyon, Radio-Fécamp, Radio-Strasbourg, at the days and hours announced by the important T. S. F. periodicals.

The *Société des Agriculteurs de France* arranges each day for a technical talk at the Eiffel Tower which is relayed by the Post and Telegraph Office (P. T. T.) from 1.15 to 1.30 p. m. The following is the list of the subjects treated in the course of the months of July and August 1930:

Details of exports — Details of transports — Kitchen garden borders — Utilisation of paper as soil cover — Tomatoes and melons — The tomato seed industry — Pests of the kitchen garden — Attention to milk on the farm — Diarrhoea in cows — Pisciculture — The position of the market of agricultural labour in France — The crisis in forestry labour — The suppression of the enticing away of foreign labourers — Influence of feeding on pigmeat — Potato blight — Position of the insured person in the case of failure of the insuring body — Present position as to social insurances — Some types of social insurances — Accidents during work on forestry undertakings — The advantage of making a proper statement for insurance — Social needs and the development of insurance — Economic Chronicle.

French stations also broadcast regular courses on arboriculture, horticulture, apiculture, given by professors or other specialists.

Radio-Toulouse broadcasts every day practical advice to agriculturists and Tunis-Kasbash broadcasts meteorological forecasts.

The publishing office of Radio-Paris publish a handbook entitled: "Meteorology at the service of agriculture", which contains the text of lectures read by General Delcambre, Director of the *Office National Météorologique*, into the microphone of the *Compagnie Française de Radiophonie*.

These lectures deal with the general interest of meteorology, organisation and tendencies of modern meteorology, the weather, clouds, atmospheric precipitations, temperature and frosts, hail and storms, and the interest of meteorology for agriculture. The book is fully illustrated.

Great Britain. — The B. B. C. makes the following transmissions in regard to agriculture:

(1) once a month, a lecture broadcasted by all stations and organised by the Ministry of Agriculture. These lectures are given by agricultural experts of distinction and the subjects are treated from different points of view;

(2) every fortnight a report prepared by the Ministry of Agriculture giving farmers general information;

(3) every fortnight 15 minute talks for gardening amateurs as well as lectures intended for country women;

(4) once a week a report of the Royal Horticultural Society dealing with subjects of interest to gardeners and small holders;

(5) every week day, except Thursdays, fat stock prices supplied by the Ministry of Agriculture;

(6) three times a week meteorological forecasts under the heading "Latest general information";

(7) the Bournemouth and Hull stations broadcast conferences organised by farmers' meetings held in these towns on subjects of main interest to farmers;

(8) during the last two years a series of talks on agricultural questions has been introduced into the programme intended for schools.

For a long time very close relations have been maintained with the Ministry of Agriculture. At first a series of fortnightly talks were arranged lasting 20 minutes beginning at 7 p. m. Experience proved that the listeners preferred a series given by the same speaker, and in consequence these talks were undertaken for some time by Sir Daniel Hall, chief technical adviser of the Ministry of Agriculture. His method was to discuss briefly and simply different questions of general interest as well as new experiments in the science or practice of agriculture. These talks although primarily intended for farmers and farm workers were so planned as to arouse the interest of as many listeners as possible. For certain questions Sir Daniel arranged that other experts should take his place.

From time to time talks on public affairs have been given dealing with the actual progress of matters of importance. In this connection also specialists were engaged to make the communications.

Weekly and fortnightly talks on gardening were usually given from 7 p. m. to 7.15 and from 6 to 6.15 p. m.

Both morning and evening there are 15 minutes talk on quite practical subjects, as for example, bee keeping or poultry keeping.

From 10.45 to 11 a. m. there are talks for housewives, on a number of questions such as fruit preserving, jam making, the health of children, decoration of the home, etc.

Hungary. — The Hungarian organisation arranges lectures of different kinds under the title of "The Farmer's Hour".

Italy. — The Italian broadcasting organisation devotes ten minutes every day and 15 minutes on holidays to agricultural broadcast messages, that is to say about 70 hours a year and for each broadcasting station. These communications are made between 6 and 7 p. m. On working days the speakers read into the apparatus notes on agriculture dealing with problems of rural life, as well as market prices of cereals, with a view to informing the country people as to the best method to be followed in crop cultivation at the different seasons, in stockbreeding and in organisation of farm work. On Sunday mornings questions put are replied to.

At the present time the Italian Government, by arrangement with the broadcasting organisation is about to establish a special institution with a view to having the schools of the rural communes supplied with receiving apparatus and lessons given that may arouse the interests of the scholars in broadcasting. There will be talks intended for farmers who will be induced to come and listen by the accounts they get from their children.

It is hoped in this way to diffuse broadcasting throughout Italy and especially in the places more distant from intellectual centres.

The financial question, that of the purchase of the 100,000 receivers approximately which will be required to equip all the divisions of the rural communes of Italy, is unfortunately difficult of solution. Much larger capital is needed than the Italian broadcasting organisation has at its disposal. Accordingly the ingenious idea has been devised of establishing a rotation system as follows.

The apparatus available will be distributed among some hundreds of communes where they will remain about two months, to be sent on elsewhere and so on unless they are bought during the period, in which case they remain with the commune. The selling price will be used to buy other apparatus which will be sent to other communes. Local agents are employed as collectors. This "snowball" method does something to remedy the want of capital and to attain the end desired.

Norway. — In 1930 *Kringkastingselskapet* has broadcasted:

(1) once a week a "Farmers' Half-Hour", consisting of lectures given by specialists on the different questions which might interest the farming class;

(2) from time to time interviews between different agricultural specialists and a practical farmer;

(3) every day at 1.15 p. m. and 7.20 p. m. the official prices of agricultural products.

In 1931 the lectures have been extended and are now broadcasted for from one to two hours a week.

Netherlands. — The Government makes provision for the agricultural broadcasting service, incorporating it with the "Commercial transmissions".

The Royal Meteorological Institute at De Bilt (a government institution) issues reports relating to agriculture and more especially indicates the night frosts or the favourable times for control measures against potato disease.

The news items of the day are also supplied by the Government. They are communicated from Scheveningen to the organisations concerned which publish notes on the exchange and on the news of the day, as well as the latest prices on the national and foreign market several times a day and several days in the week. Information relating to dairy products last for about 5 minutes, that on stockfeeds and on artificial fertilisers for 15 minutes.

The Royal Dutch Commission of Agriculture organises lectures lasting from 30 to 40 minutes. Half hour lectures have also been organised by the Dutch Horticultural Corporation and transmitted by the Hilversum station.

The K. R. O. broadcasts regularly lectures relating to agriculture the first Wednesday of each month at 7 to 7.30 p. m.

The V. R. A. broadcasts every Sunday from 9 to 9.25 a. m. a talk for gardening amateurs or owners of gardens.

In addition the Catholic organisation of market-gardeners, and smallholders, numbering more than 80,000 members, may arrange six lectures yearly.

Poland. — The organisation of the programme of agricultural broadcasting is in the hands of a special committee appointed by the Ministry of Agriculture and working in connection with agricultural societies.

The Polish broadcasting organisation transmits:

(1) agricultural communications of from 10 to 15 minutes each day dealing with special questions relating to agriculture; information of the current

prices of products, news as regards the rural life in Poland, information on regulations, laws, etc. These are made by specialists.

(2) popular lectures on agriculture intended for illiterate cultivators;

(3) longer lectures on agriculture made by specialists four to eight times per month, in winter more often than in summer, generally in the afternoon.

Polskie Radjo organised in November 1931 a special course of agriculture known as "The Popular Agricultural Broadcast University," the object of which is to develop an acquaintance with the agricultural sciences among listeners. The following quotation illustrates the idea of the course: "The way to safeguard and preserve the farm from the crisis, without reducing production, without outlay, using every possible effort to maintain or improve cultivation conditions."

This Agricultural Broadcast University has been instituted by a special Committee, consisting of representatives of the Government, including the Minister of Agriculture and high officials of the Ministry, and representatives of the *Polskie Radjo* and of institutions for agricultural instruction and experiment, in the following way: the whole of Poland has been covered by a network of receiving centres, to the number of 720, each of which includes a receiver installed in a school or on a farm. Each of these centres groups a number of listeners under the direction of a schoolmaster, who undertakes to organise the operations of this University which include:

- (1) information to farmers and farm workers as to the dates of the lectures;
- (2) making known the Agricultural Broadcast University;
- (3) distribution to members of the centres of fly-leaves, hand-books and pictures received from *Polskie Radjo*;
- (4) indication of the questions which are to form the subject of lectures;
- (5) organisation of meetings for the discussion of lectures;
- (6) attention to the regular working of the receiving station;
- (7) despatch of questionnaires for collecting reports on the courses;
- (8) despatch to the management of *Polskie-Radjo* of observations on the subject of the lectures.

The complete programme of the lectures of the Agricultural Broadcast University includes four courses of 10 days each, which have been given as follows:

Course I: 22 November to 1 December 1931, on stock raising, slaughter stock, organisation of farms.

Course II: 11 December to 22 December 1931, on poultry keeping, machine farming, manuring and questions relating to stock raising.

Course III: 17 January to 28 January 1932, on questions of horticulture, beekeeping, details relating to cultivation of cereals, social questions and co-operative societies.

Course IV: 21 February to 3 March 1932, on special questions, organisation of farm households and questions of economy.

A series of talks is organised also under the form of dialogues between farmer and specialists in agriculture.

Before each course a distribution takes place of handbooks and fly-leaves containing summaries of the lectures and explanatory illustrations.

Listeners to the first course received 140,000 fly-leaves, and 1000 handbooks as well as 5000 copies of agricultural journals.

The lectures are given by eminent specialists in agricultural subjects: professors, engineers, breeders and cultivators.

The results obtained by the Agricultural Broadcast University have been up to the present very satisfactory.

The questionnaires addressed to receiving centres have been carefully filled by the listeners and returned.

A large number of letters with warm expressions of thanks prove that the initiative taken by *Polskie Radio* has realised the object intended, *i. e.*, the development and improvement of agricultural conditions in Poland.

Rumania. — Lectures are given, in accordance with programme, by experienced lecturers and by specialists, as for example the group of experts who three times a week discuss present day rural questions on useful lines.

Sweden. — Two agricultural talks per week, the lecturers and subjects chosen by a special Committee of the Swedish Board of Agriculture (*Kungl. Lantbruksstyrelsen*).

Switzerland. — The *Radiogenossenschaft* (Bern) broadcasted in 1930:

(1) twice a week at 1 p. m. the latest news of the Price Information Office of the Swiss Peasants' Union and the prices and market quotations of live stock and vegetables, fruit, etc.;

(2) every Sunday from 2 p. m. to 2.30 a lecture on an agricultural subject or on the history of agriculture;

(3) in the course of the week also lectures on the same subject but with less regularity;

(4) twice a day meteorological forecasts;

(5) since the winter of 1929 new weekly lectures for farmers organised by the Department of Agriculture of the Canton of Berne which meets the expense.

The Société Romande de Radiophonie (Lausanne) broadcasted in 1930 every week:

(1) a lecture arranged by the Department of Agriculture, Industry and Commerce, dealing with subjects relating to agriculture;

(2) compulsory vocational courses on specialised subjects for different farming groups; courses for apprentices (twice a week).

Czechoslovakia. — In this country agricultural broadcasting has its own independent administration under the Council bearing the name of the *Curatorium* of agricultural broadcasting. All the lectures, bulletins, information, courses, etc., must be previously submitted to the censorship of *Radiojurnal* which also decides the place which they are to occupy on the broadcasting programme.

The central broadcasting administration is in Prague and there are branches at Brno, Bratislava, Kosice, and Moravska-Ostrava, where they work in conjunction with the branches of *Radiojournal* following the same principles.

The agricultural communications consist of the following:

(1) Meteorological reports.

(2) The "Bourse" of agricultural products. Information as regards the financial, economic, technical and co-operative aspects communicated twice daily (midday and 6 p. m.).

(3) Special communications for farmers under the form of lectures, agricultural news, dialogues or short plays, arranged each day, and drawn up by the special service of agricultural broadcasting.

In addition, lectures and extensive agricultural programmes are broadcasted on Sundays. In all there is a total of five hours and three quarters of agricultural broadcasting per week.

The communications are made under the forms of an agricultural journal spoken. The lectures are given by the best experts and practical farmers. Once a week there are special programmes for the wives of farmers.

Attached to the Czechoslovakian stations are also agricultural bureaux supplying information to the central office at Prague, and communicating lectures and information from regions representing different agricultural characteristics, such as Moravia, Silesia and Slovakia.

All the agricultural communications are so given as to be heard in nearly all the regions of the Czechoslovakian Republic.

Yugoslavia. — At Belgrade, the "Farmers' Hour" is given once a week, in the course of which talks are given on important problems in scientific agriculture.

At Zagreb, several series of lectures are held on the question of scientific management in agriculture and a series of lectures (one each month) on questions of parasites.

U. S. S. R. — The Soviet Postal Administration issued a decree dated 6 January 1930 by which broadcasting was to take a prominent place in the agricultural campaign of that summer.

The different communications specially intended for the rural population may be grouped as follows:

(1) meteorological reports;

(2) miscellaneous information of the day: the exchange, news of the day, market prices for fertilisers, feeds, dairy products, live stock, fruits, vegetables, etc.;

(3) popular lectures on agricultural subjects;

(4) lecture on agricultural questions, made by scientists, professors and specialists on the subject;

(5) agricultural courses to be broadcasted to schools or for adult education.

International Institute of Agriculture at Rome. — Agricultural intelligence supplied by this Institute is broadcasted regularly every Friday from 8 p. m. to 8.30 p. m. by the *Ente Italiano Audizioni Radiofoniche*. These communications relate to the most important information telegraphed to the Institute during the week by the different Governments, or may be statements summarising the general crop situation or prospects for the principal products. Communications are made in five languages: Italian, French, English, German and Spanish.

E. MARCHESI

*President of the Ente Italiano
Audizioni Radiofoniche.*

INSURANCE

Agricultural Insurance in Canada

HAIL INSURANCE

In Canada hail insurance is effected by two types of institutions: by share companies and by municipal insurance associations, the organisation of which will be dealt with later. Share companies are divided into companies with a Dominion license, and companies holding provincial licenses.

In 1929 (1) there were in Canada 41 share companies of the former type dealing with hail insurance, viz., six Canadian companies, eight British companies, and 27 foreign companies. In 1930 (2) the number of share companies rose to 42, viz., six Canadian, six British and 30 foreign companies.

In the prairie provinces, Saskatchewan, Alberta and Manitoba the intention has been to form an intermunicipal organisation for hail insurance, which will be later described.

In the east of Canada (3) and in British Colombia hail insurance is not very common, probably because hail storms are not so frequent in those areas, and because the diversified farming system makes it less necessary to provide protection against such risks.

The Insurance Act 1917 which has been amended from time to time relates to insurance in general. It contains a provision referring to hail insurance companies in accordance with which every Canadian company licensed to transact the business of hail insurance in Canada must set aside as a hail insurance surplus fund at least fifty per cent. of the profit realised from such business during the year and shall continue to do so each year until or so that the said surplus

(1) Report of the Superintendent of Insurance, Dominion of Canada, Business of 1929, Vol. I, p. XXXVIII.

(2) Report of the Superintendent of Insurance, Dominion of Canada, Business of 1930, p. XXXVIII.

(3) GOSSELIN in *The Economic Annalist*, Ottawa, September 1931, p. 9.

fund shall be never less than fifty per cent. of the net hail premiums received during the preceding calendar year. As regards British and foreign companies which are licensed to transact hail insurance in Canada, they are required to maintain assets in Canada in excess of the amount required to be maintained for the other branches of insurance and equal to an amount of at least 50 per cent. of the net total of hail insurance premiums received during the preceding calendar year.

The Treasury Board, at a meeting held on 8 May 1930, authorised the issue, to a company licensed for Fire Insurance, of a license for the transaction of insurance against loss of, or damage to, buildings by hail without any deposit being required in addition to that prescribed by the law for such companies in respect of their fire insurance business.

Provincial legislation exists in Canada for the regulation of insurance in general. In the Saskatchewan law known as the Saskatchewan Insurance Act 1924-25 c. 20 (1) (to quote the law of a Province in which we shall later examine the organisation of intermunicipal hail insurance) in addition to important provisions on the organisation of insurance in general in the Province, (*e. g.* relating to the superintendent of insurance, insurance companies, mutual aid societies, insurance contracts, etc.), special provisions relating to hail insurance. The following is a list of the principal questions dealt with in this part of the law: premium rates, applications for insurance, commencement of liability, expiry of contracts, the information which must appear on the face of any policy, the statutory conditions which must be printed on every policy, in which no variations, omissions or additions may be made by an insurer unless such variations are printed on the policy in conspicuous type and in red ink with the introductory words stating that the said variations are in force so far only as they are held to be just and reasonable, termination of insurance, etc.

Every insurer must before 1 May in each year file with the superintendent the rates of premium to be charged in each part of the Province, and such rates shall be effective until the first day of May in the succeeding year unless changed in the meantime and the change notified to the superintendent at least ten days before being put into operation. The insurer shall not be liable for the losses from hail found to be less than five per cent. of the amount of insurance per acre, and in no case is the insurer expected to compensate the insured person for any loss less than ten dollars except where the acreage insured is 40 acres or less.

The organisation of municipal hail insurance in Saskatchewan will now be described. This province has been chosen because the municipal hail insurance introduced in that province has served as the basis for the systems of municipal insurance in Alberta and Manitoba (2).

The present organisation of this kind of insurance is regulated in Saskatchewan by the Act of 1930 (The Municipal Hail Insurance Act 1930, c. 37, s. 1) amended by the Act of 13 April 1932.

(1) The Revised Statutes of Saskatchewan, 1930, Vol. I.

(2) GOSSELIN, *The Economic Annalist*, p. 7.

In accordance with the Act of 1912 which introduced this type of insurance in Saskatchewan the townships of the province desiring to combine for hail insurance might be empowered by the Lieutenant-Governor, provided that a certain procedure was followed and that there were at least 25 townships desiring to combine for the purpose, to appoint a Hail Insurance Commission consisting of three members. The function of this body, the chairman of which had to be appointed by the Lieutenant-Governor and the other two members by the mayors of the townships combining, was to fix the premium rates and the allocation of compensation payments. The premiums had to be paid under the form of a tax applied to all assessable lands of the township with certain exceptions. The application of this Act was limited to townships where the rate-payers had voted in favour of this system of insurance. Certain amendments were made to this Act in 1915 and again in 1917.

By the Act of 10 March 1917 this municipal commission was abolished and replaced by an association (The Saskatchewan Municipal Hail Insurance Association) consisting of the representatives of all the townships forming part of the organisation to be described. Several amendments were made to this Act, and later the Act of 1930 was passed and has in its turn undergone amendment.

In accordance with this Act the above Association continues to exist and is to consist of: (a) representatives of all the municipalities which subject to the provisions of the Act desire to undertake jointly with other municipalities compensation of losses in respect of crops growing within the area of all such municipalities and (b) representatives of municipalities which may be admitted to the benefits and rights conferred by this Act upon such terms as the association may direct by by-law.

The Association which is a body corporate has power:

(a) to borrow money for the purpose of carrying out the objects of its incorporation, to hypothecate, pledge and mortgage its property, etc., and to sign bills or other securities for money borrowed or to be borrowed for the purposes aforesaid;

(b) to invest any reserve fund or surplus that may be from time to time accumulated by the Association;

(c) to make compensation payments in respect of crops damaged by hail within the area of municipalities, forming part of the organisation.

The Association may under certain conditions of voting appropriate from its reserve funds sums not to exceed 20,000 dollars for the purpose of subscribing for capital stock in a limited Company authorised to insure crops against loss or damage by hail, provided that all the capital stock is to belong to or be controlled by the association. The Association has a council of nine directors who appoint from their own number an executive committee, consisting of the president, vice-president and one other member of the board. This executive committee has such powers as may be delegated to it from time to time by the directors. The Association may from time to time make such by-laws, not contrary to law nor inconsistent with the Municipal Hail Insurance Act, as may be deemed expedient for certain purposes indicated by the Act. The

directors shall possess all the powers of making by-laws conferred upon the Association, but no such by-law shall be contrary to or inconsistent with any unrepealed by-law of the Association, and the Association has the right to amend or repeal any by-law made by the directors. The Association must close its books on or before the last day of February in each year, and must immediately thereafter have a full and complete audit made of its books, records and accounts by one or more chartered accountants. When the audit is complete, the association must prepare and publish a full and complete report of its operations during the last preceding fiscal year. A copy of such report shall be furnished to the Minister and to the reeve and secretary-treasurer of each municipality under the Act.

In order that a municipality form part of the organisation in question, it is essential that the council of the municipality should, at a regular meeting, resolve to submit to the electors a by-law, drawn in the prescribed form, empowering the municipality to engage in the operations already indicated. The persons entitled to vote upon a by-law are all rate-payers (except a special class) in a municipality. In accordance with the Act, upon receipt before the first day of November in any year of a petition to that effect, signed by no less than fifty resident ratepayers of the municipality, the council shall submit a by-law to the electors. In the event of a by-law receiving the assent of the majority of the voters voting thereon, the council shall at its next regular meeting finally pass the by-law in question, and the secretary treasurer shall prepare, certify and forward to the Minister of Municipal Affairs two copies together with a certified statement showing the number of votes cast for and against the by-law. After publication in the *Saskatchewan Gazette* of the Minister's approval and not earlier, the by-law shall come into force.

Upon receipt, before the first day of November in any year, of a petition to that effect signed by not less than 25 per cent. of the resident ratepayers of the municipality, the Council is to submit to the electors for their voting a by-law repealing any by-law of the municipality, the procedure to be followed being laid down by the Act.

So soon as the approval of a by-law by the Minister has been published in the *Saskatchewan Gazette*, all persons in the locality become and are liable to be assessed for a rate if any interest of such persons in lands situated within the municipality is assessable for municipal purposes. Lands within a hamlet and land held under grazing lease from the Dominion of Canada are exempt from assessment.

The rate which is fixed by the Act at four cents per acre shall be increased by an additional rate imposed by the directors, and an important provision is that by which the directors may define the areas within which these additional rates shall be levied, and such higher or lower rates may be of different amounts in different areas. The rates thus levied shall be and remain until paid a charge and a tax upon the lands or upon any interest therein of the party assessed notwithstanding that the title to such land may be in the Crown or that the lands themselves are not otherwise liable to assessment.

Under certain conditions and following a certain procedure, provision is made for withdrawals and exemptions of lands from the operation of the by-law imposing the rates.

As regards collection of rates, the Act lays down that the secretary-treasurer of the municipality shall cause the rates to be entered on the assessment roll of the municipality for the current year, against all lands and all interests in lands within the municipality not withdrawn and relieved from imposition, and against the persons to be assessed in respect thereof. Such rates are to be collected in the same manner as municipal taxes. As regards claims for damages, it is enacted that any person having interest in a crop or portion of a crop growing on land assessed and liable for rates under this Act, who presents a claim in respect of damage from hail caused to the standing crop on such land, between the tenth day of June and the fifteenth of September, shall in accordance with a prescribed procedure receive an indemnity of *not more than ten cents per acre for every one per cent. of damage* which the board may decide he has sustained.

No claimant is however entitled to indemnity under this Act for any damages less than five per cent. of the crop upon the hailed area at the time of damage. If such loss or damage proves on inspection to be less than five per cent. the cost of inspection is to be paid by the claimant. The damage from hail throughout the same season and upon the same area is to be treated as cumulative.

In the event of the total actual and estimated revenues of the association not being considered by the Commission as sufficient to pay all losses in full, these shall be paid *pro rata*.

In order to enable the association to make full use of its assets in meeting claims accruing in the course of any year, irrespective of the amount of its collections, the Lieutenant-Governor in Council may enter into agreements with the association and with persons lending money to it, guaranteeing repayment of the sums advanced, either originally or upon renewal with interest. The association may secure the Province against any loss that may result from the guarantee given, in such a manner and in such a form as the Lieutenant-Governor in Council may approve.

In the Province of Alberta a similar organisation is in existence. In virtue of certain provisions contained in a law enacted in 1912 under the title of the Municipal Act 1912 the council of each municipality of the Province could adopt a by-law in the form prescribed by the Minister the object of which was to form with at least nine other municipalities a Hail Insurance District for the purpose of indemnifying every person having an interest in a crop growing within the municipality. This by-law before coming into force had to receive the approval of the majority of the electors in accordance with the procedure prescribed by the Act. The Hail Insurance District was to be administered by a Hail Insurance Board which consisted of the mayors of the municipalities included in the district, and which had the powers conferred on it by the Act.

After having undergone expansion and amendment, the part relating to the organisation of municipal hail insurance contained in the Act on the municipalities became in 1915 a special law on municipal hail insurance. This law has been subsequently amended from time to time.

In Manitoba there is also an Act respecting Intermunicipal Hail Insurance dated 20 February 1914. This Act was based on principles similar to those in accordance with which the laws on municipal hail insurance in Saskatchewan and Alberta were framed.

There is no central service in Canada for recording the occurrence of hail storms and of the damage so caused. Statistics relating to the damage produced by hail are drawn up and kept up to date by the municipal hail insurance associations in the Provinces of Saskatchewan and Alberta and by the share Companies dealing with this branch of insurance.

The following are the statistics relating to the share Companies undertaking hail insurance in Canada (1).

In 1929 there existed 41 Companies (6 Canadian, 8 British, and 27 foreign), holding Dominion licenses. The premiums amounted to 3,571,334 dollars and the claims to 1,013,527 dollars. The Companies holding provincial licenses registered 53,628 dollars of premiums against which no claim was made.

In 1930 the number of Companies holding Dominion licences was 42 (6 Canadian, 6 British, and 30 foreign). The premiums amounted to 2,856,091 dollars and the claims to 2,592,646 dollars. The companies holding provincial licenses registered 1,053,652 dollars in premiums and claims amounting to 806,912 dollars.

The following are the figures shown in the *Toronto Chronicle* (2) prepared by the Association of Hail Insurers in Canada and relating to 52 insurance companies operating in Canada.

In the three Provinces of Saskatchewan, Alberta and Manitoba in 1930 the following results were obtained:

	PREMIUMS	LOSSES	%
	—	—	—
Saskatchewan.	\$ 1,629,877	1,585,429	97.27
Alberta	» 837,130	873,548	105.35
Manitoba.	» 489,382	192,349	39.30

The following is a table showing the results obtained from 1917 up to 1930:

1917	\$ 3,035,895	1,390,269	45.8
1918	» 2,251,188	696,956	30.9
1919	» 2,712,776	1,798,926	66.3
1920	» 5,800,026	2,371,270	40.9
1921	» 4,371,348	4,718,786	107.9
1922	» 4,402,427	1,635,347	37.1
1932	» 5,322,642	5,119,347	96.1
1924	» 3,687,107	2,004,957	54.3
1925	» 5,397,394	2,267,390	39.4
1926	» 4,803,004	3,185,047	66.3
1927	» 6,370,000	6,875,000	107.9
1928	» 7,324,114	7,356,321	100.44
1929	» 3,709,197	1,039,479	28.2
1930	» 2,956,389	2,651,326	82.1

(1) These figures have been taken from the Reports of the Superintendent of Insurance, Dominion of Canada for 1929 and 1930, p. XXXVII—.

(2) *Corriere delle Assicurazioni*, aprile 1931, p. 37.

The following is a statement of the activity of the intermunicipal organizations in the three Provinces of Saskatchewan, Alberta, and Manitoba (1).

Saskatchewan: the total insurance carried by the Association in 1929 was 7,953,139 acres at 5 dollars per acre or a total of 39,765,695 dollars.

The income and expenditure statement of the Saskatchewan Hail Insurance Association shows the following results for 1929 (2):

Total assessments	\$	1,408,046.88
Total awards	»	614,474.59
	»	793,572.29
Paid rural municipalities for services less crop report penalties	»	30,640.06
	»	762,932.23
General operating expenses	»	75,068.97
Surplus on operations	»	687,863.26
Net miscellaneous income	»	106,145.49
Surplus for year	»	794,008.75

The balance sheet surplus of the Association was 2,540,742.48 dollars in 1929.

The losses paid by the Saskatchewan Hail Association were very low compared with the amount paid in 1928, viz., 2,223,915.86 dollars.

Alberta. — There were 887,532 acres insured by the Hail Insurance Board of Alberta in 1929 (3) and of these 62,210 acres were cancelled on account of floods, frost or drought.

The following is the statement of the operations of the Alberta Hail Insurance Board for 1929:

Assessment	\$	795,030.40
Claims, adjustment fees and expenses	»	593,866.65
	»	201,163.79
Commissions to municipal districts	»	15,058.95
	»	186,104.84
Expenses	»	44,742.02
Miscellaneous income (nett)	»	141,362.82
Net income	»	25,099.12
	»	166,461.94

(1) Hail Insurance, *The Economic Annalist*, Ottawa, September 1931, p. 8.

(2) Report of the Saskatchewan Municipal Hail Insurance Association for the year ending January 31, 1930, p. 7.

(3) Annual Report of the Hail Insurance Board of Alberta for the year ending January 31, 1930, p. 9.

Although the volume of the business carried municipally decreased one-third in 1929 on account of adverse conditions, the volume carried by other competitors decreased to about 60 %.

Manitoba. — According to the article by Mr. A. Gosselin in the *Economic Annalist*, although there is, as already stated, a Municipal Hail Insurance Act in Manitoba, very little data are available for purpose of comparison and it seems that a large share of the hail insurance business is transacted by joint stock companies registered in that province.

LIVE STOCK INSURANCE.

Live stock insurance is effected in Canada almost exclusively by companies. In 1929 (1) there were four companies undertaking this branch of insurance and holding the Dominion license, viz. one Canadian, one British and two foreign. The total amount of premiums paid to these companies during 1929 was 75,419 dollars and the net amount of claims was 42,295 dollars. At the end of the year there were claims not settled to the value of 10,900 dollars. In 1930 the number of live stock insurance companies was reduced to three (one British and two foreign). The total amount of premiums paid during 1930 was 59,428 dollars and the claims amounted to 88,992 dollars. At the end of the year there were 29,475 dollars representing claims not settled.

Agricultural Fire Insurance. — Some account may be given of a special insurance organisation operating in Canada in the Province of Quebec, taking the form of mutual companies formed by municipalities and parishes which effect fire insurance. There are in addition joint stock companies with a federal or provincial license, cash mutual companies and strictly mutual companies transacting business over a more extended area. Organisations on similar lines to the municipality mutual companies and operating in a local area also are in existence in Ontario and Manitoba (2).

The Quebec Insurance Act (3) empowers the councils of rural municipalities to found mutual insurance companies with the object of insuring against accidents by fire, by fire and lightning, or by fire, lightning and wind, any building erected upon assessable land within the municipality, as well as any grain, hay, fodder, household furniture and agricultural implements contained in such buildings.

The mutual companies thus formed are subject to the formalities of a license and registration, and each one is administered by the council of the municipi-

(1) Report of the Superintendent of Insurance. Dominion of Canada. For 1929 see p. XXXVIII and CCLXII, for 1930, p. XXXVIII and CCXXXIX.

(2) GOSSELIN M., *Co-operative Farm Fire Insurance in Quebec*, in the *Economic Annalist*, June 1931.

(3) Statuts refondus de la Province de Québec 1925.

pality in which it is established. The council is empowered to insure or not insure certain buildings and also to fix by by-law the maximum amount of insurance which it is decided to grant on the property that may be insured or on any such property.

Owners of property insured are members of such companies and are liable to it for the amount of the damage caused by fire, etc., as well as for all debts and obligations contracted by the companies, in proportion to the amount for which their property is insured. The company is responsible to each of its members for two thirds of the damage caused to the buildings or property in question to an amount not exceeding two thirds of the valuation of the insured goods or for an amount not exceeding two thirds of the maximum amount of the insurance if such maximum is fixed.

The councils may, if so authorised by the majority of insured persons, levy twenty-five cents per one hundred dollars of the amount insured to establish a reserve fund and are to levy annually an amount sufficient to meet all the damages, the amount of which has been established, and to pay all the obligations and matured debts of the company. This amount is to be levied by means of a tax imposed upon each building insured, in proportion to the amount of its valuation and of the valuation of its contents, or in proportion to the amount of the insurance thereon. This tax is collected in the same manner as the municipal taxes and has the same privileges. The mutual companies of the parishes are on the contrary established independently of the council of the municipality. Twenty-five owners residing in any parish or local municipality five of whom are provisional directors of an association formed with the view of establishing a mutual fire insurance company may form such a company. Legislative provisions regulating the mutual companies apply to these companies provided that they do not conflict with special provisions relating to these companies.

The following table shows the financial positions in dollars of the fire insurance societies in the Province of Quebec in 1929 (1):

COMPANIES	PAID UP CAPITAL	INSURAN- CES IN FORCE	ASSETS	LIABIL- ITIES	RECEIPTS	DISBURSE- MENTS
Stock Companies (*) . . .	2,777,516	62,986,288	26,405,533	23,085,729	5,806,838	4,394,180
Stock and Mutual Companies	338,000	86,092,709	2,732,692	472,315	1,046,618	876,195
Strictly Mutual Companies .	..	55,518,256	1,283,754	260,410	283,636	223,419
Municipality Mutual . . . .	..	11,905,179	98,972	3,565	14,168	12,549
Parish Mutuals. . . . .	..	83,223,834	4,240,796	70,882	239,895	231,348

(*) Stock companies also transact other branches of insurance business.

F. A.

FARM ECONOMICS

The Position of Agriculture in the Free State of Saxony as deduced from Accountancy Results for the Farming years 1926-27, 1927-28 and 1928-29.

On 1 April 1927 a Bureau was established in connection with the Institute for Agricultural Economy (*Institut für landwirtschaftliche Betriebslehre*) of the Leipzig University, the special object being the study of conditions of farming in the Free State of Saxony. The following was the programme laid down for this Bureau:

- (1) study of the conditions of the working of farms in Saxony utilising for the purpose the results of farm accounts;
- (2) submission to the *Wirtschaftsministerium* of annual reports on the earning capacity of agriculture;
- (3) encouragement of research and instruction relating to the economic organisation of farms;
- (4) promotion of a better understanding throughout the province in regard to the economy of the farm and of the country generally by means of publication of the results obtained.

The first report made by the Bureau has been recently published (1) covering the three crop years 1926-27, 1927-28 and 1928-29.

In utilisation of the material and in its general statement of purpose, this report closely follows the lines of the work done by Prof. Laur during the past thirty years on the earning capacity of Swiss agriculture.

The report gives, in the first place, a general view of the natural and economic conditions of agricultural production in Saxony and of weather conditions, crop yields, price movements, etc., during the three years under review. This is followed by a statement as regards sources of material, methods followed in its elaboration and the terms employed. Over the three years 1,731 accounting results have been in all placed at the disposal of the Bureau by 10 of the farm accountancy offices of the State. The farms on which these results were obtained annually represented 4.17 per cent. of the area under cultivation of the whole of the farms in Saxony, not including those under five hectares, and the average area of the farms under review was 57.64 hectares. The distribution of the farms reviewed over the various parts of the country differing in natural and economic conditions was not entirely representative, and the same applies to the size categories of farms. In the course of the three years mentioned however and

(1) Die Lage der Landwirtschaft im Freistaat Sachsen, Untersuchungen über die Rentabilität der sächsischen Landwirtschaft in den Erntejahren 1926-27, 1927-28, 1928-29. Bericht der mit dem Institut für landwirtschaftliche Betriebslehre der Universität Leipzig verbundenen Landsstelle zur Erforschung der landwirtschaftlichen Betriebsverhältnisse im Freistaat Sachsen, erstattet von Prof. Dr. FALKE unter Mitwirkung von H. ISENSEN, Heft 1. Dresden und Leipzig 1932. Verlag Theodor Steinkopf.

also during the subsequent years great progress has been made in this respect. The fundamental principles and the methods adopted in the treatment of the accountancy results correspond to the recommendations made by the International Institute of Agriculture in collaboration with Prof. Laur for an international agricultural farm accountancy statistic.

In the main section of the Report the following subjects are treated in detail: farming expenses, gross return, contributions in kind from the farm to the household, the proportion of the gross return allocated to the market, net return, assets and debts, income, crop values and other values, results in the different cultivation zones of Saxon agriculture, and the economic situation of the farms. In accordance with the programme of the Bureau weighted averages are calculated for the whole country taking the weighted averages of the accountancy results, and it is in fact these calculations that make the report of extraordinary importance, the more so that it presents only indisputable and scientifically established facts, apart from any economic theory.

Some only of the numerous partial results can be indicated here. In none of the three years under review was a positive net return secured in agriculture; on the contrary a deficit on the average of the three years of 23.84 marks per hectare. Of the farms under review during the three years 46 per cent. were paying enterprises and 54 per cent. showed loss. In consequence of this there has been an increase in the indebtedness of the farms. On assets calculated (exclusive of land values) of 2,000 marks the total indebtedness per hectare increased from 500 marks on 1 July 1926 to 747.61 up to 30 June 1929.

The average in the State for the net return from agriculture per farming family for the whole country was calculated on the basis of the results at 817 marks. It was thus so insignificant that in no case would it cover family consumption, and had to be supplemented by inroads on the capital or by recourse to credit. The net income of the farming family from agriculture is ascertained to be 47.85 marks per hectare. If a five per cent. interest on the family capital is deducted, the wage claim of the farming family stands at - 21.65 marks, if on the other hand, the wage claim is deducted, there is an interest on the family capital of -88.21 marks per hectare. The following comment on the figures is made by the compilers of the report: "The results are practically without exception negative, and very far from the sums that might be regarded as acceptable on the most modest estimate. The net return from agriculture accordingly, where the farmer has renounced the interest on his own invested capital, has been insufficient to meet the customary local family labour earnings, or if that claim is renounced it is still insufficient to produce five per cent. interest on the capital.... The untenable position of agricultural returns in Saxony during the three years under review is apparent from the figures in a way that requires no further illustration."

The amount of the social income derived from agriculture becomes less as the size of the farm is increased. The following table shows the absolute total of the social income in the different size categories and its distribution. It is only in farms up to 30 hectares that there is a share for the farming family. In farms of more than 30 hectares the amounts due to the employees, to the credit-

ors, to the State and to the commune exceed the total amount of the social income, so that not only does nothing remain for the farming family but the family has to draw upon its own capital for livelihood expenses or have recourse to credit.

*The Social Income and its Distribution over the average
of the three farming years 1926-27 to 1928-29.*

SIZE-CATEGORY	SOCIAL INCOME IN MARKS PER HA.	OUT OF THE SOCIAL INCOME IS RECEIVED BY			
		the family (wage claim and interest on capital)	the farmhands etc.	creditors (interest, rent)	State and commune (land tax and personal charges)
5-10 ha	422.15	32.5	40.0	18.9	8.6
10-20 »	357.55	18.2	58.6	13.1	10.1
20-30 »	345.06	6.6	69.1	13.4	10.9
30-50 »	362.58	— 2.3	76.9	14.3	11.1
100-200 »	353.43	— 12.6	82.8	18.9	10.9
100-200 »	288.01	— 22.6	92.0	19.8	10.8
over 200 »	301.58	— 29.0	94.1	23.7	11.2
Average of the Farms	323.65	— 13.0	83.5	18.4	11.1
Average for the whole Country	356.52	9.1	64.7	16.0	10.2

A great advance has thus been made by the publication of this report in the study and illustration of the position of agriculture in Saxony. In addition the work may be considered as a model in regard to the importance of farm accountancy and the utilisation of its results. Special attention is drawn to this work as proving that the International Institute of Agriculture is on the right path in its efforts for the extension of farm accountancy and for the further development of international statistics based on accountancy. The result of these efforts depends however entirely on the work accomplished by the different countries. Every fresh enquiry of the kind facilitates the work of the Institute and increases the material which can be employed in a comparison of the position of agriculture in the different States. Such a comparison will in its turn stimulate the desire for making national investigations and will provide valuable data for the elucidation of numerous questions relating to the economy of the farm and of the nation and even world economy. It may be noted at the same time that the second volume of the *Recueil de statistiques basées sur les données de la comptabilité agricole*, containing the accounting results for 1928-29 for 16 European countries has just been published (1).

H. B.

(1) INSTITUT INTERNATIONAL D'AGRICULTURE, *Recueil de statistiques basées sur les données de la comptabilité agricole pour 1928-29*. Rome 1932, Bestetti et Tuminelli.

CO-OPERATION

Vine Cultivation and Co-operative Vine-growing Societies in Argentina.

Vine cultivation in Argentina is liable to periodical crises due partly to an under consumption of grapes and of wine and partly to the fact that there is no satisfactory co-operative organisation existing among producers, traders and consumers such as might tend to increase consumption and bring it into line with production while ensuring a supply of wine to suit the tastes of Argentine and foreign consumers.

Reference has been made in an earlier number of this Review (1) to the first of these periodical crises which occurred in 1914 and lasted till 1918. The main cause of this crisis was the overproduction of grapes, vine growing being the basic industry of the province of Mendoza. Side by side with this overproduction other factors may be noted which contributed to bring about this serious state of affairs in the industry, alike in regard to the growing of grapes, and in regard to the preparation, sale and consumption of wine. Measures were accordingly taken, such as the absolute prohibition of the planting of new vines from 1917 to 1921, a more diversified cropping system, the establishment of regional warehouses having certain fiscal privileges over a period of years, commercial treaties with neighbouring countries with a view to facilitating the export of Argentine wines by the grant of customs privileges in return. It was also hoped to relieve the crisis by the establishment under the law of 1 December 1916 of a quasi-official monopoly known as the *Sociedad Cooperativa Vitivinícola*. This body was however declared in 1918 by the Supreme National Tribunal to be unconstitutional. It was in fact a monopoly set up by the wine manufacturers at Mendoza and it had done more to disorganise vine-growing than to strengthen its organisation in the province. Its formation was a blunder which decidedly benefited the similar industry of the neighbouring province of San Juan where free competition had continued to prevail.

It should be noted that, among the vine-growing provinces of Argentina, that of Mendoza contains the lands most suitable for grape cultivation and for the production of certain highly appreciated types of wines.

In 1928 there were 78,000 hectares under vineyards, and 5,684,600 hectolitres of wine were produced, in 1,738 registered organisations, 1,050 being in full operation. These are simple industrial private undertakings based on speculation. They were engaged in transforming the largest possible quantity of grapes, bought from the growers, without giving much attention to technique of preparation, nor to the quality of the grapes, and requirements of consumer. Little of the product was sold outside the Province of Mendoza.

(1) See *International Review of Agricultural Economics*, Year IX, No. 1, January 1918.

The two provinces of Mendoza and San Juan form the vine-growing region of Cuyo which represents 96 per cent. of the whole production of the Argentine Republic.

In these two Provinces, the increase of the production of wine from 1914 to 1918 amounted to 64 per cent., whereas the population figures for the Republic rose from 7,948,609 to 10,922,035, or a total increase of 37.5 per cent. There was a very general belief, later proved by statistics drawn up by Prof. Bunge to be erroneous, that the crisis was to be attributed to overproduction rather than to underconsumption, *i. e.*, a reduction in the consumption of wine by the population, due to a number of economic causes.

In order to meet the new crisis, a new organisation, *Sociedad Anónima Vitivinícola*, was formed in Mendoza in 1929 by a group of manufacturers who were owners of vineyards and of winemaking establishments. The declared object of this Company was to check overproduction, which was believed to be the main and even the single cause of the crisis, and to safeguard and improve wine production. Opposition however was soon encountered from another group of farmers and manufacturers who maintained that it was essential to proceed to the joint protection of the industry by means of co-operation so as to avoid the necessity of the special model forms for purchase and sale, established by the Company in its relations with the suppliers of wines. The victory however remained with the Company backed as it was by the provincial authorities and by the credit institutions which showed a readiness to find a generous measure of financial support.

This gave rise to a fresh attack on the position of this commercial organisation from the side of the retailers of wine who were anxious to avoid any disadvantages resulting from these agreements.

These sellers maintained before the courts that it was the intention of the Company to injure the freedom of trade and industry, as recognised by the National Constitution, by the formation of a monopoly contrary to the law on trusts. They accordingly requested the revocation of the legal recognition of the Company.

The organisers of this opposition to the activity of the Company and to its character as a monopoly brought proofs of the losses they had suffered from inability to market their grapes, and demanded the conversion of the Company into a regional co-operative society under the national law on co-operative societies. In this way every member could become a shareholder and have the right to vote, and, as they pointed out, it was evident that the only possible solution of the national problem of vine cultivation was that of co-operative regional organisation of the growers.

The Company opposed this demand in the interest of the large growers, bringing forward the argument that it was impossible to change the whole character and structure in order to give special advantages to small growers, and equally so to renounce the credit of 14 million *pesos* which had been granted by a consortium formed by the Bank of Argentina and four other private banks to promote development of the Company and the foundation of similar companies in other provinces.

The clash of interests accordingly became centred on this demand for a co-operative organisation in opposition to the purely industrial and commercial principle.

The law on co-operative societies, No. 11,388, provides for and authorises the federation of co-operative societies for the purposes of agricultural credit to be obtained from the Bank of Argentina on advantageous terms, the self-governing character and economic independence of the different associated co-operative societies being retained. The conflict of principles and methods, however, continues, owing to the fact that alike in the Province of Mendoza and in that of San Juan the number of co-operative vine-growing and wine-making societies is too small to effect by such federation a real transformation in the legal character of the Company. In addition, these different co-operative societies do not succeed in securing individually the financing they require from the Bank, owing to their restricted trading capacity as compared with the total and collective requirements of the industry. In order to deal with the question in the interests of growers not belonging to the Company who are compelled to sacrifice large quantities of grapes, there has been formed at Buenos Aires a *Centro Vitivinicola Nacional* which has studied the special crisis of the industry alike from the legal as from the economic and political point of view, including that of the finances of the provinces interested in the preservation and development of the industry. These provinces undoubtedly cannot consent to the sacrifice of two million quintals of grapes, even if there is over-production, simply because the Company is not in a position to buy. Nor would they agree that several thousand workers, employed in private winemaking firms, should remain without work, with the inevitable results of such unemployment on trade, credit, fiscal receipts, etc.

In 1930, this central organisation approached the Bank of Argentina requesting it to appoint a joint Committee, consisting of delegates of the Consortium of Banks, the Mendoza Company and the *Centro Vitivinicola Nacional* itself with a view to a solution of the problem in the common national interest. With the object of promoting the proposals made by the *Centro*, the Minister of Agriculture formed, from 28 January 1931, a National Committee of Enquiry into the industry and into suitable measures for its protection. The Minister of Finance and the Minister of the Interior also took into consideration proposals within their competence made by the *Centro* for a more effective protection of the industry against the special crisis affecting it.

In regard to the characteristic features of this crisis, special mention should be made of the work of Prof. Bunge of the University of Buenos Aires. He ascertained that in the period from 1910 to 1914 the consumption of wine by the Argentine population increased up to 62 litres per year per head, and that subsequently it became stationary and finally in 1927 began to fall, in consequence of the unexpected rise in prices, the result of the bad weather which in that year occasioned the destruction of a great part of the Mendoza vintage. Prof. Bunge attributes the crisis simply to this diminished national consumption. General causes, no doubt, account for such a reduction in all wine consuming countries, but there are also special causes in the case of Argentina among

which may be ranked first the decrease dating from 1924 of the European immigration into the country, and in particular of the Spanish and Italian immigration. In contrast with the immigration of other European nationalities — which has noticeably increased — the influx of Spaniards and Italians formerly tended to maintain the balance between the number of resident foreigners and the consumption in the country of the national wines. Actually the consumption of beer is now on the increase in Argentina as also replacement of wine by other beverages.

As contributory causes to underconsumption, Prof. Bunge mentions the high prices of wine and the raising of the provincial customs charges on wine acting also as a check on interprovincial trade. It is for this reason that he maintains that the problem for solution does not relate to production but to consumption and export. He adds that it is of first importance to regain the index of consumption of 62 and a half litres per person which was reached in the period 1922 to 1926, the drop from 1927 onwards being largely due to changes in taste of the consumers. A stabilisation of wine prices must also be obtained, as variations affect consumption adversely. There should also be a better organisation of measures for checking adulteration; relief from taxation should be obtained so far as possible, while a careful supervision of by-products is required with proper organisation of the export business.

Writers on the subject urge that the example of Chile should be followed in these various respects. In that country the consumption of wine per head increased over a period of fifteen years from 58.49 in 1910 to 88.65 in 1925, a period during which the consumption of beer in Chile fell from 16.05 to 11.37 litres. Inspection for the detection of adulteration or addition of water in wine is very strict in Chile, and reductions are constantly being made in the fiscal charges which press on this industry. In these respects, as has been said, Argentina would do well to profit by the example, and even more so in respect of the excellent organisation of the export trade in wine. Chilean wine is of excellent quality, the price is low and the product is well known in Europe, where among the importing countries Belgium held the first place in 1930 with 2,700,000 litres, Germany came next with 1,395,000 and France followed with 598,000 litres. In addition the quantities imported into other countries of Latin America or sent to the Far East amounted to 5,600,000 litres. It is evident that the special crisis of Argentina is not to be attributed to the supposed over-production.

The *Federación Agraria Argentina* is fully aware of the special features of the situation and intends to do its utmost to bring about the organisation of the industry on the new basis of co-operation. It proposes to follow up the work initiated by the *Centro Vitivinícola Nacional*, in regard to the formation of co-operative winemaking societies, the reduction of fiscal charges, abolition of interprovincial duties, reduction of the cost of transport, construction of new railways designed to improve connections, and organisation of direct control of production by the growers themselves with the object of preventing adulterations in the retail trade. Partial renewal of vineyards is also under contemplation and the formation of a link between the different types of co-operative

societies, growers' societies, societies for purchase and sale and consumers' societies. A linking organisation of this kind would, it is felt, do much to restore the demand for wine and the confidence of the public, while at the same time eliminating unnecessary and costly intermediaries.

E. F.

BUNGE, Alejandro E.: La industria vitivinícola in Argentina. *Revista de Economía Argentina*. Año XII, N. 140, 141, 142, febrero, marzo, abril 1930.

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TO THE MEMORY OF ALBERT THOMAS

On 30 June in the Victoria Hall, Geneva, at a special meeting of the Governing Body of the International Labour Office, the work of Albert Thomas was fitly commemorated.

The ceremony began with the reception of the authorities, followed by the performance on the organ of fragments of the Prelude to Parsifal. M. Mahaim, President of the Governing Body, opened the meeting and addresses were given by the following speakers:

- | | |
|------------------------|--|
| M. E. MAHAIM | Representative of the Belgian Government on the Governing Body of the International Labour Office; President of the Governing Body of the International Labour Office. |
| Sir ATUL CHATTERJEE. | Representative of the Government of India on the Governing Body of the International Labour Office; Vice-President of the Governing Body. |
| M. H. C. OERSTED ... | Employers' member on the Governing Body of the International Labour Office; Vice-President of the Governing Body. |
| M. C. MERTENS | Workers' member of the Governing Body of the International Labour Office; Vice-President of the Governing Body. |
| Sir ERIC DRUMMOND .. | Secretary General of the League of Nations. |
| Mr. A. HENDERSON ... | Chairman of the Disarmament Conference. |
| Mr. E. SCHULTHESS ... | Vice-President of the Swiss Federal Council. |
| Mr. F. MARTIN | President of the Council of State of the Republic and Canton of Geneva. |
| M. G. DE MICHELIS .. | President of the International Institute of Agriculture, Representative of the Italian Government on the Governing Body of the International Labour Office. |
| M. L. JOUHAUX | Workers' member of the Governing Body of the International Labour Office; Vice-President of the International Syndical Federation. |
| M. P. J. S. SERRARENS. | Secretary General of the International Federation of Christian Syndicates. |

- M. A. BOISSARD Secretary General of the International Association for Social Progress.
- M. L. BOISSIER..... Vice-President of the Federation of international semi-official and private institutions established at Geneva.
- M. C. K. STREIT President of the International Association of Accredited Journalists at the League of Nations.
- M. A. DALIMIER Minister of Labour in France.
- Mr. H. B. BUTLER ... Assistant Director of the International Labour Office.

At the close of the ceremony the choral from the third act of the Meistersinger "Wacht auf. Es geht gegen den Tag" was played.

* * *

The address delivered by His Excellency, M. De Michelis, President of the International Institute of Agriculture, is here reproduced.

The International Institute of Agriculture cannot but respond to the summons to take its place here on this solemn occasion dedicated to the memory of Albert Thomas.

The Governments of the 57 States and of the 15 independent Colonies which are constituent members of the Institute, its Permanent Committee and the members of its Staff desire, through my presence here and through these words of mine, to convey their tribute of heartfelt recognition.

For us of the Institute at Rome there remains the double memory of the ever loyal friendship which he whom we mourn to-day always showed for our Institution and of the fruitful work which under his auspices the International Labour Bureau and the Institute have carried out in common in a cordial spirit of friendly rivalry and solidarity.

When, at the outset of the life of the International Labour Bureau, doubts were cast on its competence in the sphere of Agriculture, it was thought, and there were those who desired, that the older institution, the first to be established through an agreement between the Nations, should make a successful claim for recognition of its status and of its achievements. Instead, through the action of Albert Thomas and of the present speaker, a joint agricultural commission, consultative in character, was set up which, from 1920 onwards has most happily provided the link between the Office in Geneva and the Institute in Rome by bringing the two bodies together for the joint study of agricultural problems and for concerted action.

However the controversy regarding the competence of the International Labour Office in agriculture, which was thus peacefully settled between the two international organisations concerned, gathered strength instead of dying down. In point of fact serious difficulties were encountered having their origin in certain irreconcilable agricultural circles, and the Government of a nation, very close to Albert Thomas himself, lent its authority to their contention. But the great champion prepared himself with all his strength, with all his

skill, with all his cogent argument, to defend the issue he had at heart, and in the end, before the Court at the Hague, he gained a decisive victory.

The struggle had been fought in order once for all to establish the universality of the mission entrusted to the International Labour Office and it was the Director of that Office who won the day for the cause he had espoused so warmly.

There had been reason to hope that the cycle, begun at Washington in 1919 on behalf of workers in industry and carried on at Genoa in 1920 on behalf of seamen, would have been completed by an examination of the labour conditions of the workers on the land and the consideration of the steps to be taken to better them.

In this field, however, were encountered difficulties of a new and graver order which were opposed to any far-reaching and beneficent policy. These difficulties were the inevitable outcome of the meagre protection granted to workers on the land under national legislations, a fact that formed a serious obstacle to the establishment of any kind of international regulation. For this reason it has so far proved impossible to arrive at any agreement to determine a legal working day for agriculture and the results of the movement have been limited to the adoption of three conventions and certain recommendations of a general order.

Closely associated as it has been with the policy in which Albert Thomas was the ever tireless leading spirit, the International Institute of Agriculture has been in a position to know and itself to appreciate to the full the orderly systematic and wholehearted labour of this great worker, who never sought a moment's rest from his task, performed from 1920 onwards with a tenacity of purpose that was only matched by the keenness of his vision, the breadth of his conception and his puissant energy.

In Albert Thomas the cause of the workers has lost one of its most devoted, as one of its most effective servants of these days and long will it have to wait for a soul, a will and a heart so generously endowed.

Already much has been said and much has been written, and more will be said and more will be written in the days to come, of the work accomplished by the great man who has gone before and of the influence left by his glorious and potent exemplar. It would be almost impossible to convey a precise idea of the full scope, moral and practical, of his activity. The beneficent results of his efforts are now spread throughout the world, thanks to the impetus of that dynamic temperament which made him always the effective pioneer.

In the early days of the International Labour Office a sociologist, seeking to give a definition of the new Bureau said: "It first informs itself and then informs the rest." Such a rôle was far too small for a man so great as Albert Thomas who, after building up a structure complete in all its parts, shaped it in his own way, assumed direction, gave it the stamp of effective action and made its influence felt throughout the world.

Of this place he made a veritable factory of ideas, of movements, of plans for laws; it became the starting point of a ceaseless effort which set in motion in every nation the machinery for betterment and for relieving hardships. He himself became missionary for its generous sentiment and influence by his

pilgrimages from east to west and from north to south in order to approach and to win over the most powerful authorities, to plead the cause of the weak and to persuade the Governments of the necessity for ratifying the Conventions adopted at Geneva.

In one of those striking speeches that he made at the close of a Conference, not so much with the object of summing up the proceedings but of infusing them with something of his own fire and genius, he laid down for himself his role of lighthouse-keeper. "This", said he, "is one of those human tasks which call for the utmost care, the utmost devotion and the utmost heroism."

The beacon light has burnt brightly in the midst of all the tempests and foul weather because the keeper was animated by a sentiment of supreme necessity such as should inspire every worthy effort of national collaboration in all times of anxiety and exigencies of all kinds.

Anxieties of ancient and of more recent date, exigencies springing from tradition and social change, thoughts of yesterday and of the morrow; the ruthless conflict of human selfishness entrenched amid its private interests and ready to crush every attempt at co-ordination and national agreement; the restlessness of working folk and of peoples anxious for peace and repose; none of these terrors was ever allowed, even for an instant, to affright, or even to trouble, the spirit of Albert Thomas.

That spirit and that heart had always an infallible stimulus, the sense of social justice. Herein also lay the deep-seated cause of his optimism. It was impossible for him to believe in any retrogression of human society in the direction of a less advanced form of civilisation. His breadth of intelligence was able to pierce the surrounding darkness and the shadows and to cast its rays where but few privileged eyes could reach towards the splendour of new dawns. His work still lives after his death in all the generous impulses that he has set in movement, in the light which he has shed upon the working masses throughout the world. Albert Thomas lives in their sufferings, he lives in their hopes and will live again in the conquests they will achieve, so long as the history of the world is illumined by a single ray of common feeling and of justice.

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MONTHLY BULLETIN

OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

FARM ECONOMICS.

Scientific Organisation of Agricultural Work in Finland (1).

I. — THE IMPORTANCE OF THE PROBLEM OF THE EFFICIENCY OF AGRICULTURAL WORK.

The income of a country depends primarily on the effective results of the work of its population. This is especially the case in countries where there is no great natural wealth or where as is the case in Finland production cannot rely upon large capital resources. In Finland 65 per cent. of the population derive income mainly from agriculture and the allied occupations. More than 50 per cent. of the whole public capital of Finland is invested in farms which include large stretches of forest land in addition to arable land properly so called. Accordingly, if the people of Finland are to enjoy a moderately well-equipped existence, suitable workers are needed and the work of the numerous agricultural population must be thoroughly effective, while the production per head and per unit of time must be the largest possible. On the other hand if it is desired that Finnish agriculture should be able to withstand competition in the international sphere, then all possible must be done to reduce the labour required per unit of production of farm products.

According to the investigations made on the earning capacity of agriculture which were set on foot in 1912 and are based on the keeping of farm accounts, labour costs in agriculture amounted in 1921-25 in Finland to 1233 Finnish marks on an average per hectare cultivated, representing 62.3 per cent. of production costs (2).

Farm labour costs in Finland consist of two different values, the value of the work of the paid workers, and that of the work of the farmer himself. In 1927-28, labour costs showed a percentage distribution as follows:

Nature of work	%
Paid work.	58.9
Work of farmer	41.1

(1) This report has been forwarded to the Institute by the Finnish Association for Rationalisation of Farm Work in response to the enquiry made on the scientific organisation of farm work in the different European countries. The results of this enquiry were published by the Institute in 1931 in a separate volume under the title: "L'Organisation scientifique du travail agricole en Europe", in which some of the data of this report were utilised. This study has been brought up to date and rendered more complete, and is now issued separately in the following pages.

(2) *Investigations into the earning capacity of agriculture in Finland.* Vol. I-XVI.

For the group of the smallest sized holdings, those under 10 hectares, the proportion of the farmer's own labour was 76.9 per cent. of the total labour costs. The larger are the farms, the smaller is the share of the farmer's labour, so that on the large farms, 100 hectares and more, it does not amount to more than 9.6 per cent. of the labour costs.

In 1927-28 the percentage distribution of the labour costs on all farms keeping farm accounts was as follows:

Labour costs	Per hectare Finnish marks	Labour costs in % of production costs
Paid work on farm	778	32.8
Work done by the family	543	22.9
including:		
Administration	138	5.8
Other work	405	17.1

These labour costs may be distributed as follows under different items:

Nature of costs	%
Wages in ready money	23.5
Board (of wage earners)	23.3
Products of the farm	10.1
Other benefits from the farm	1.7
Other contributions in kind	0.3
Work of the farmer himself	41.1
	<hr/>
	100
	<hr/>

The proportion of paid labour is thus in Finland about 60 per cent. of the costs of agricultural work. Labour costs per man's working day amounted in 1927-28 to 30 Finnish marks; in 1921-25 they were on an average 28 Finnish marks.

It may be mentioned that on the farms that keep accounts the horse work days were 148 per year, which will be admitted to be a low output.

On the State experimental farms, with an average wage of 3.94 Finnish marks per hour, 1,748 horse work hours were required per year and per horse from 1925 to 1927. In making investigations into the earning capacity of agriculture, very special attention has been given during recent years to the actual output from the work alike of men and horses owing to the fact that the cost of both is constantly increasing. To this is due the interest which is so keenly shown in the real output of agricultural work.

II. — HISTORY OF THE INVESTIGATIONS RELATING TO LABOUR IN FINLAND (I).

Towards the end of last century importance began to be attached in Finland to questions relating to the real output of work; it was the period when Fin-

(1) JUTILA K. T. *Investigations into the earning capacity of agriculture in Finland and results.* Report on the Congress of N. J. F. at Helsinki, July 1929.

land was passing from an internal home economy to a trade economy. This transformation took place more rapidly on the large farms, and the consequence was that on these same farms questions relating to labour became at this time of increasing importance.

The State experimental farms of Finland, numbering 12, and in particular the Mustiala experiment farm, have taken a foremost place in respect to this question of the actual output of labour. The Mustiala school of agriculture, from its beginning as far back as 1840, included on its curriculum farm accounting, and the accountancy of the experiment farm attached to the Mustiala school was at an early period relatively complete. At the end of the century, not many farms in Finland possessed a work record, accounting books and others showing labour conditions as complete as those of Mustiala. Through the medium of students going out from the institution the science of farm accountancy and the interest in it was diffused throughout Finland.

The accounting in reference to labour at Mustiala owes its importance to the fact that the Director of the farm from 1902 to 1907, the late Professor Karl Enckell, made use of the material thus assembled at Mustiala and laid down the bases, not only in Finland but in all the Northern countries, of investigations relating to farm work. He published the following works: "Fluctuations in the Intensity of Work during the different periods of the year" - "Labour Requirements of the different systems of cultivation, of the different crops and the types of labour - Helsingfors, 1908". Director Enckell dealt in his books with the results of the day's work and the fluctuations in labour requirements in the different periods of every crop rotation, in a word, with the problems that began only within recent years to attract general attention in Finland.

At the same time he showed clearly the reasons for the fluctuations in the intensity of work at Mustiala and advised measures for regularising the annual labour requirements, a question of primary importance when dealing with the organisation of the farm and the utilisation of labour. In addition he demonstrated the labour required at Mustiala for each rotation and for each crop. On the initiative of the Director investigations were made at Mustiala on the result of work during the days of from 10 to 12 hours, and comparisons were instituted between the work done by machines and by human workers. Although the investigations made by Enckell were limited to the results obtained on a single farm, they have had none the less a remarkable importance for agriculture in Finland, especially as showing that a detailed accountancy as regards labour is from more than one standpoint essential to the conduct of a farm enterprise.

Dr. Enckell became in 1907 interim professor and in 1910 ordinary professor of the Chair of Rural Economy at the University of Helsinki. A real pioneer, he has exercised a great influence on investigations into agricultural economy in Finland; he has in fact been the educator of the younger generation of investigators.

At the beginning of the XXth century, great interest was aroused in Finland by the establishment of farm accountancy offices, due largely to the un-

favourable interaction of economic causes at the time. The first office was set up in 1911 by the agricultural association of Itä-Häme, but its activity was shortly afterwards suspended. In 1917 the accounting office of the Häme-Satakunta agricultural association was founded, which subsequently enlarged its sphere of activity and published enquiries on the earning capacity of agriculture (1).

In 1912 on the initiative of the Central Union of the Agricultural Associations of Finland which undertook all the preparatory work, the question of accountancy received practical attention, and the management was shortly afterwards assigned to a central Office placed under the control of the Ministry of Agriculture. This Office was known as the Administration of Agriculture, and a share of the direction also fell to an establishment which received the name of Research Establishment of the Administration of Agriculture in regard to Agrarian Economy.

The work is carried on by the Director General of this Administration, Dr. J. E. Sunila, at the present time President of the Council of Ministers. The first year, the establishment made a survey of the accounts of 122 family farm holdings; and in 1927-28 it dealt with nearly 700 (2).

The accountancy system devised by Dr. J. E. Sunila has not merely been adopted on the farms just mentioned; it has also been widely introduced among other sections of the population engaged in agriculture, being taught in all the schools of agriculture and utilised for advisory work in connection with rural economy (3).

The system involves two work record books: these give a precise idea of the conditions of labour. In addition since 1917-18, the experiment farms of the State schools and since 1923 also 15 private farms, maintain, combined with their bookkeeping by double entry, a detailed accountancy of work giving special attention to the checking of work done (4).

Very thorough investigations into the expenditure on labour on the experiment farms of the State schools have been made on the basis of this accounting system. The most recent is that of the Agricultural Advisor, K. J. Ellilä: "Organisation and Results of the Farming of the Experiment farm holdings of the State Schools". The following figures are taken from this enquiry.

The noticeable variations shown in this table as occurring in the labour costs of the different farms result merely from the difference in the intensity of the work. This intensity of work is especially low at Korsholm.

(1) RURIK PIHKALA. *Maatalouskirjanpito-opas pieniä ja keskimeen-Satakunnan Maanviljelysseuran kirjanpitotoimistossa*. Tampere 1927. — K. I. VIRTANAN. *Maatalouden kannattavuus ja siihen vaikuttavista tekijöistä Hämeen-Satakunnan Maanviljelysseuran kirjanpitotoimiston kirjanpitojen perusteella tilikaudelta 1926-27*. Tampere 1928.

(2) The results of the investigations have appeared in: *Investigations on the Earning Capacity of Agriculture in Finland*, I-XVII.

(3) SUNILA J. E. *Maatalouskirjanpito*. Porvoo, 1917.

(4) *Ohjeita valtion maanviljelyskoulutlain kannattavuus kirjanpidossa*. Maataloushallituksen tiedonautoja No. 124. Helsingissä, 1918.

TABLE I. — *Labour Costs per hectare of the Experiment Farms of the State Schools (in Finnish marks).*

NAME OF THE FARM	WINTER BARLEY		OATS		ROOT CROPS		HAY	
	Man work hours	Horse work hours	Man work hours	Horse work hours	Man work hours	Horse work hours	Man work hours	Horse work hours
Years 1925-27:								
Mustiala,	296	205	307	204	677	356	172	123
Lepaa,	240	148	152	117	605	298	106	88
Harju,	233	209	170	171	526	354	140	138
Kurkijoki	396	223	242	143	678	278	170	103
Elisenvaara,	180	185	135	135	514	344	88	88
Otava,	223	195	203	202	843	555	127	128
Korsholm	418	272	290	186	957	411	174	105
Tarvaala	228	184	159	157	444	361	99	99
Koivikko	285	145	202	122	656	318	149	89
Seppälä,	326	131	288	168	718	292	170	105
All farms:								
1925-27,	282	203	212	161	620	347	141	110
1922-24,	312	263	248	200	613	307	141	100
1919-21,	390	273	288	222	730	338	152	101

All the crops have in this instance necessitated very high expenditure of labour, except oats, cultivation of which at Mustiala is however even more unprofitable. The farm standing last in the column shows a still larger expenditure on labour. The figures for labour costs at Elisenvaara are very favourable. The cost of human labour is for all the crops the lowest. The labour costs for hay at Elisenvaara are only about half those of Korsholm.

Glancing at the three year averages for all the farms, there will be noted, after the period from 1919 to 1921, a considerable dropping of the labour costs. This is due in part to the improvement in dead stock and probably also to the steps that have been taken to increase the effective output from work.

Up to the present, the work of the accountancy offices of the Administration of Agriculture has been mainly directed towards making investigation into the earning capacity of agriculture. Owing to want of funds it has not been possible to undertake analyses of farm accounts. In the near future this state of things must be remedied, and the work entrusted to the accountancy office. This is to be opened shortly and will be attached to the agricultural associations for the purpose of preparing the balance sheets.

The research establishment of the Administration of agriculture will in the first place merely assemble the material and prepare the farm analyses; more attention will be given than in the past to questions relating to the actual work output.

III. — THE ASSOCIATION FOR RATIONALISATION OF AGRICULTURAL WORK.

As a result of various questions arising out of the principle of the actual output of work, an idea grew up in different circles of founding an association the members of which would work on common lines, would make known in their country and abroad the experiences acquired and the results in connection with the actual output of work, and would stimulate investigation in Finland on the possibility of increasing this output (1).

This idea formed the starting point of the decision taken on 16 May 1924, at a meeting of persons interested, to found an association to deal with the question of rationalisation of agricultural work. According to its statutes (2), the object of this association is to increase the productivity of farm work in Finland and to form a liaison body for farmers endeavouring to solve the problem, for scientific men, agricultural and industrial associations as well as for commercial undertakings. Membership of the association in 1930 included 900 persons. Since 1926 it has received State subsidies and in addition, in 1925 and up to 1928, it received contributions from the Central Committee of agri-

(1) *Year-book of the Association for the Rationalisation of Agricultural Work*, 1924, p. 81.

(2) STATUTES OF THE FINNISH ASSOCIATION FOR RATIONALISATION OF FARM WORK (*abridged*).

§ 1. — *Name and headquarters.* — The name of the organisation is: Association for Rationalisation of Farm Work, and the headquarters are at Helsinki.

§ 2. — *Object.* — The object of the Association is to increase the efficiency of agricultural work in Finland and to act at the same time as a liaison organ between farmers who are working for the promotion of efficiency in farm work, specialists engaged in the investigations required, agricultural and industrial associations and commercial undertakings.

§ 3. — *Method of Work.* — The Association endeavours to attain its object:

(a) by holding meetings at which the question of efficiency methods is treated by means of lectures, reports, discussions, etc.;

(b) by collecting and preserving in permanent form the results of investigations and experiments;

(c) by endeavouring to promote vocational instruction and to secure more attention than hitherto in Experiment Institutes for the question of efficiency in agricultural work.

§ 4. — *Members.* — Annual membership of the Association is open to all persons of good repute, and to any society, or co-operative or other organisation, on payment to the funds of the Association of a subscription of 20 marks. Life membership is secured by a single payment of 250 marks at least; principal members pay 1000 marks at least in a single payment and associate members pay every year at least 100 marks.

§ 5. — *Management Committee.* — The Association is represented by the Management Committee which is responsible for its Administration except in respect of questions which, in accordance with the rules and the law, must be decided by the general meetings of the Association.

§ 6. —

§ 7. —

§ 8. — *Audit.* — The annual report, as also the report prepared by the Management Committee on the past year, must be ready by 15 February for submission to the auditors.

§ 9. — *General meetings.* — The annual general meeting of the Association is held during the period from February to May, and the autumn meeting in November or December. In case of need, extraordinary meetings are summoned.

cultural research institutions. The subsidies received from the State consist of the following sums distributed over the different years:

Year		Finnish marks
1925	From the Central Committee of agricultural research institutions	30,000
1926	From State funds	75,000
»	From the Central Committee of agricultural research institutions	40,000
1927	From State funds	75,000
»	From the Central Committee of agricultural research institutions	40,000
1928	From State funds	75,000
»	From the Central Committee of agricultural research institutions	40,000
1929	From State funds	115,000
1930	From State funds	130,000

In common with other agricultural organisations, the Association for Rationalisation of Agricultural Work is a member of the Central Union of Agricultural Associations in Finland.

§ 10. — The business before the general meeting includes:

(a) Annual report of the Management Committee on its activity during the past year;
 (b) Auditors' report, and if necessary, the report of the Management Committee in reference to that of the auditors.

(c) Decisions as to whether the Management Committee is or is not to be relieved of its duties.

During ordinary or extraordinary general meetings questions may also be discussed which are raised by the Management Committee or by any one of the members, if the Management Committee has given previous notice.

Any question raised by a member of the Association in the course of a general meeting may be dealt with during the sitting if the general meeting so decides, but no definite resolution may be passed on a question so raised.

§ 11. — *Right of voting, procedure in voting, elections.* — Every member of the Association has one vote at the general meetings but has no power to pass on his right of voting to any proxy. The right to vote held by a society, co-operative or other organisation belonging to the Association is exercised by a representative entrusted with full powers by such body.

At the general meetings alike of the Association and of the Management Committee the voting is personal. Elections may be held on open ballot, provided no request is made for a secret ballot. In the case of equal voting, the chairman has the casting vote, or lots are drawn, if it is a case of making a choice.

§ 12. — *Local Associations.* — With the object of stimulating the work of the Association in any part of the country, members of the Association resident in the locality, may form a local branch Association there; such Association shall draw up rules for regulation of its activities, which shall be approved by the Management Committee of the Association.

A local Association may receive from the Association, so far as funds permit, financial support or special privileges. In this case it is under the obligation of presenting in February of each year to the Management Committee a report on its activity during the past year.

In view of the fact that there is a large number of agricultural associations on Finnish territory pursuing a variety of practical objects, no attempt has been made to found specialised associations for efficiency checks, but efforts have rather been directed to developing these within the already existing associations.

The associations especially equipped for carrying out efficiency checks are in the first instance accountancy clubs, clubs for check of crop returns founded in 1926 and agricultural research clubs (1).

In the first year the management committee of the Association delegated to a sub-committee the work of preparing for the labour record book a suitable scheme of grouping of the various types of work. This committee, consisting of Dr. G. Palander, the agricultural advisor K. J. Ellilä, and the expert manager V. A. Arola, prepared a scheme which was accepted and which with slight modifications forms the basis at the present time of the system of labour accountancy of the Association. The formulae proposed by Dr. G. Pallander for the labour records relate (2) to this system.

The system of labour accountancy will now be briefly described. The different kinds of labour are classified in the following way under the main groups:

I. - Field labour	No. 10-23
II. - Other work for crops	» 25-27
III. - Improvement and reconstruction work.	» 28
IV. - Work for the farm animals	» 30-33
V. - Drainage work	» 34
VI. - Conservation work	» 40-42
VII. - Warehouse work	» 50-57
VIII. - Forest work	» 60-61
IX. - Other farm work	» 70-73
X. - Miscellaneous, not specified	» 80-82

These main groups are divided into sub-groups, numbered in such a way that to the sub-groups belonging to the group of field labour are assigned the numbers ranging from 10 to 23, those belonging to the group of other work in connection with crops are numbered from 25 to 27, etc. The different kinds of work falling under the sub-groups are similarly numbered, but in this

(1) The activity of the Association for check of crop returns and that of the Associations for agricultural research is described in the year books and publications of the Union of the latter Associations, J. FANNES, O. COLLAN, Koeteminintayhdisopas. Kourola 1929. Koetomintayhdistysten liiton vuosikirjat, 1928-29.

(2) *Maatalouden Työshöseuran työpäiväkirjan työjaoittelu ja ohjeet työpäiväkirjayhteenvetojen laatimista varten.* Helsinki, 1929.

case the numbering begins with one. An example of this classification is sub-joined in respect of field labour:

10. - Repair of ditches:
 - (1) open ditches
 - (2) land drainage channels;
 - (3) drains.
11. - Ploughing:
 - (1) removal of turf;
 - (2) ploughing in of stubble;
 - (3) ploughing with sub-soilers.
12. - Preparatory cultivation:
 - (1) winter rye;
 - (2) winter wheat;
 - (3) oats;
 - (4) barley;
 - (5) spring wheat;
 - (6) meslin;
 - (7) peas;
 - (8) green forage;
 - (9) potatoes;
 - (10) turnips;
 - (11) kohl-rabi.
13. - Fertilisers:
 - (1) management of farm manure;
 - (2) transport of stable manure to the field;
 - (3) spreading of manure;
 - (4) transport and spreading of liquid manure;
 - (5) management of transport and spreading of night soil;
 - (6) transport and spreading of chemical fertilisers;
 - (7) placing of rubbish on the manure heap, etc.

Each page of the work record book is kept for the work of five workmen during 16 days. For each day three lines are assigned. If in the course of a day a worker has undertaken more than three different kinds of work, the additional kinds may be entered either between the lines or on a second vertical column. In the first vertical column reserved for each worker is entered the nature of the work, in the second his hours of work, in the third the hours worked by the draught animal, and in the fourth the wages. In the wages column there are only entered the wages of day labourers, overtime pay, wages of the permanent workers, and in the case of job work, sums paid for job work.

Side by side with the work record book there are schedules, each page containing observations with reference to nine workers and seven days of work. These schedules resemble pages of the record already described except that they allow space for the entry of observations as to the weather and as to the results of the work from day to day.

The method of filling up the work record book is explained in a supplement; another supplement explains the method of using the recapitulatory tables which are drawn up on a uniform plan with the help of a card system; the summaries are made by the Accountancy Office.

On the card index is shown for each farm the following observations taken from the work record book of each farm:

Card No. 1-a, and 1-b: Weekly or monthly recapitulation of the work record;

Card No. 2-a and 2-b: Each number assigned to any one of the kinds of work (e. g., 10.1, 10.2, and 10.3) is transferred weekly or monthly on to the card relating to it;

Card No. 3 and 4: Recapitulatory observations relating to the utilisation of the soil of the farm, the production and value of the crop;

Card No. 5: Recapitulatory observations relating to the head of live stock on the farm;

Card No. 6-a, and 6-b: Recapitulation of the monthly or weekly labour expenditure expressed in man and horse work hours;

Card No. 7: Yearly expenditure of labour divided among the main groups of work;

Card No. 8: Expenditure of labour for crops and expressed in man and horse work hours;

Card No. 9: Expenditure of labour expressed in man work hours, relating to field work on the different crops;

Card No. 10: Labour expenditure per hectare relating to the different crops and expressed in man work hours;

Card No. 11: Labour expenditure per 1000 crop units expressed in man work hours;

Card No. 12: Work of horses in horse work hours effected for the different crops;

Card No. 13: Work of horses effected for the different crops per hectare and in horse work hours;

Card No. 14: Work done by horses per 1000 crop units and in horse work hours;

Card No. 15: Work of farm animals expressed in man and horse work hours.

Work Record from 1 to 15 September 193. . .

DAY	ANDERS MÜLLER			
	Kind of Work	Time in hours	Horse work hours	Finnish marks
1	11.1	10	20	—
2	10.2	10	—	10
3	12.1	10	40	—

This example shows how the entries are made in the work record. On the first day the farmworker Müller was occupied for 10 hours turf removing with a team; the second day for 10 hours he cleaned open ditches, and in addition to his wages he earned 10 Finnish marks for job work; the third day with a four horse team he was working for 10 hours on a field of winter rye.

The Association for Rationalisation of Farm Work has so far devoted a large share of its activity to the organisation of research and experiment in connection with farm work. This has been mainly confined to detailed investigations in regard to time taken; but less detailed investigation methods have been followed also in respect of the results of work and of the material collected by accountancy methods.

IV. — SOME RESULTS REACHED BY THE ASSOCIATION FOR RATIONALISATION OF FARM WORK.

When detailed enquiries are undertaken on work, the observations on the duration of work should be as complete as possible and the entries should be made so precisely that it is possible to divide the work into stages and to measure with a chronometer the fraction of time belonging to each stage. To effect these investigations and in particular to check efficiency, use is made of the mathematical method adopted by the Economic Division of the German Society of Agriculture (*Deutsche Landwirtschafts-Gesellschaft*). However in Finland, where the fields are usually broken up by ditches, and are of irregular form and often in separate parcels, conditions are so different that it is often more advantageous, in undertaking enquiries into efficiency, to employ the detailed method of valuation rather than the mathematical method. This is based on less numerous measurements of time, although requiring much more work.

Among the investigations undertaken by the Association for Rationalisation of Farm Work that have been published, there may be mentioned the following:

1. — *Ploughing.*

It was proposed to determine the work required by the autumn ploughings. At the same time the quantity of forage supplied to the horses was measured and observations of their condition of health were made.

As appears from the table, out of the whole time required by the work, 75 per cent. on an average (representing a spread from 61 to 92 per cent.) was absorbed by the actual duration of the work. In other words about one fourth of the time was spent in harnessing, going to the field, etc. This proportion, however, varied between one third and one tenth of the time taken over work. Each day 0.63 ha. on an average, ranging from 0.45 to 0.76 ha., was ploughed. In one hour of work, not including pauses, 0.10 ha. on an average, *i. e.* from 0.07 to 0.14 ha., was ploughed. The width of the furrows varied, according to the style of the ploughman, between 0.3 and 0.4 m.; the narrowest furrows were

TABLE II. — *Expenditure of labour for the Autumn Ploughings.*

FARM	Gross time	Net time	Net time in % of gross time	Length of intervals in work	Absolute calculation of time of work	Absolute time of work in % of total time
1	8 h. 55'	6 h 51'	77	3.7	6 h. 36'	74
2	8 » 13'	6 » 52'	84	2.7	6 » 41'	81
3	9 » —	6 » 26'	17	15.0	5 » 18'	61
4	8 » 30'	6 » 19'	74	17.4	5 » 14'	61
5	9 » —	7 » 58'	89	6.0	7 » 29'	83
6	9 » —	7 » 51'	87	7.0	7 » 18'	81
7	9 » 37'	8 » 25'	88	18.6	7 » 31'	78
8	8 » 51'	7 » 11'	81	25.0	5 » 23'	61
9	9 » 5'	9 » —	99	11.0	8 » —	92
Average	—	—	85	—	—	75

FARM	Quantity of work in ha. on average per cart and per team		Average width of ploughing	Average depth of furrow	Speed of ploughing metres per second
	per day	per hour of work			
1	0.66	0.10	0.35	0.17	0.8
2	0.65	0.10	0.40	0.20	0.7
3	0.68	0.12	0.36	0.20	0.9
4	0.71	0.14	0.35	0.20	1.1
5	0.59	0.08	0.38	0.16	0.6
6	0.52	0.07	0.37	0.15	0.5
7	0.76	0.10	0.40	0.20	0.7
8	0.68	0.13	0.30	0.22	1.2
9	0.45	0.06	0.35	0.17	0.4
Average	0.63 ha.	0.10 ha.	—	—	0.8

obtained by the use of two-share ploughs. The depth of the furrows varied between 0.15 and 0.22 m. or 6 to 9 inches.

On farm No. 8 ploughing was done with a four horse team and a two share plough, with a coulter 30 cm. wide. Although the depth of the furrows was greatest on this farm, No. 8 took the third place in respect of the extent of the area ploughed, per share and per pair of horses. At the same time one half day of work is saved on this farm. On the same farm the same implements were used to plough in the stubble before planting potatoes. The area ploughed per day and per share was 0.63 ha., although the working day was 6 hours 45

minutes. As the actual time occupied in work, intervals not included, was 4 hours and 2 minutes, the area ploughed was 0.16 ha. per hour of work.

Although the quality of the soil, the length of the parcels and method of ploughing differed from one farm to another, it seems possible to conclude from the data that, when the autumn ploughings are carried out scientifically, it should not be difficult to plough 70 and even 80 ares per day, *i. e.*, to obtain a result one and a half times to twice as good as that which is regarded as normal (0.4 to 0.5 ha.).

The powers of resistance shown by the horses employed make it possible to establish a very interesting relation between feed and work done.

TABLE III. — *Relation between Feed and Work Accomplished.*

FARM	Duration of test	HORSES			FORAGE PER HORSE AND PER DAY			Unit of feed value	Starch value
		Breed	Average weight kg.	Reduction in weight kg.	Oats	Hay	Green forage		
1	6	medium. . .	505	14.5	2.0	10-12	—	7.6	5.3
2	3	—	495	11.0	3.0	10	3 of oatmeal . .	7.5	5.5
3	5	strong . . .	516	14.0	3.0	12	—	7.3	5.3
4	10	very strong .	580	2.5	6.5	12	2 of straw . . .	10.5	7.8
5	10	medium . . .	464	2.5	6.0	8	6 of fodder beets	9.7	6.4
6	10	strong . . .	518	7.0	6.0	10	—	9.0	6.4
7	12	—	—	—	3.0	10	25 of clover . . .	10.3	7.5
8	8	strong . . .	—	—	7.5	8	3 of oatmeal . .	10.0	7.6
9	6	—	—	—	4.0	10-12	2 of straw . . .	8.1	5.9

On the three first farms, where the feed given was average, and where about 7.5 feed units and 5.4 starch values were given per day to the horses, the reduction in weight was on an average 13.5 kg. On farms 4 and 5, where about 10 feed units and 7 starch values were given per day to the horses, there was only a trifling reduction, 2.5 kg. Unfortunately the figures relating to farms 7 to 9 are not available. The entries for No. 7 show that at the conclusion of the trial one pair of horses showed fatigue while the other team was in satisfactory condition. The horses of the farms 4 and 6 were in good condition; those of farm No. 5 showed signs of fatigue. These latter were somewhat small and 18 years old.

The Sachs apparatus which automatically measures the motive power was used on farms 5, 8, 9 and 19. The expenditure of motive power is shown in the following table.

TABLE IV. — *Expenditure of Motive Power during the Different Kinds of Ploughing.*

FARM	Quality of soil	Number of horses	Depth of furrows inches	Expenditure of motive power kg.	Kind of ploughing
5	clayey	2	8	216	turf.
9	"	2	7	195	ploughing in the stubble before planting potatoes.
9	"	2	8	239	do.
8	"	2	11	232	ploughing in stubble before oats.
8	"	2	11	215	do.
10	"	2	6	218	do.
8	sandy soil	4	7	345	ploughing in stubble before planting potatoes.
8	" "	4	8	347	do.
8	" "	4	8	369	do.
8	" "	4	9 ½	426	do.
8	" "	4	11	472	ploughing in stubble before sowing oats.
10	clayey	4	8	406	do.
10	"	4	8 ½	385	do.

The motive power is nearly the same on all farms. The differences in expenditure are in part due to the absence of a sufficient number of trials and in part to differing soil quality. Thus to open a furrow to the depth of 8 inches, with a team of two horses, it was necessary to utilise a motive power of from 216 to 239 kg. With a four horse team, the same furrow required 358 kg. of motive power, or 1.65 times more than with two horses. This fact is evidently connected with the action of the plough in opening the furrow.

2. — *Comparative Investigations of the Labour Expended on Parcels Drained and Provided with Open Ditches (1).*

In regard to these results, it may be mentioned merely that on drained parcels harrowing with spring harrows gave a workyield of 14.3, machine sowing a yield of 11.2, and rolling 22.2 per cent. higher than that obtained on parcels with open ditches. Investigations on the effect of the length of the parcels on the expenditure of work relate to the harrowing and ploughing. Cer-

tain results will be quoted here relating to work with the plough. The harrowing results show the same tendency:

Length of parcels 100 m.	Work done per hour 94 ares
» » 50 »	» » 75 »
» » 25 »	» » 54 »

According to the length of the parcels the duration of the work (not including intervals) per ha. for each of the different operations of ploughing is as follows:

Length of furrow ploughed		100 m.	50 m.	25 m.
Actual work of the plough	sec.	28,700	29,960	28,560
Turning at end of field	»	7,000	14,000	28,000
Passing from one parcel to another . .	»	738	1,558	3,198
Ploughing of strips	»	1,929	3,449	6,509
Chance interruptions	»	112	224	—
Total	sec.	<u>38,479</u>	<u>48,191</u>	<u>66,267</u>

The results show clearly the extent to which the system of short parcels is unscientific and the reasons.

3. — *Comparative Investigations as to the Work Yield with Different Methods of Harvesting.*

The investigation relates to reaping oats with the scythe, the sickle and with reaping machinery, showing comparative results.

Method of Work	Yield per hour and per group of workers	Yield per hour and by unit of work
	ares	ares
Reaping with sickle	—	2.8
» » scythe	—	11.3
» » Deering cereal reaper . . .	28.2	10.5
» » Deering reaper	47.6	17.9

The work yields obtained by the employment of the sickle, scythe and reaper are very satisfactory. They are quite comparable, as they have been obtained on the same farm, on adjacent parcels and in the same circumstances. The workers who used the sickle employed their time as follows: they devoted 90.4 per cent. to actual work and 9.6 per cent. to pauses. In the case of workers with the scythe, 78.3 of the time was taken up by actual work, and 21.7 per cent. by pauses. The crop was dense, and 11.3 ares was a very satisfactory output for each man handling a scythe. Reaping with the scythe was shown to be

four times as effective as reaping with the sickle. The output per hour of the reaping machine was 47.6 ares, which was also highly satisfactory. The reaping machine is however not to be recommended for the oat crop, as the blades spoil the grain. It is advisable to use special rakes. Of the whole time employed 90.8 per cent. was given to the actual reaping and 9.2 per cent. to the turning of the machine.

It should be noted that the trials were made in conditions especially favourable for the work of the machine, and that the length of the parcel was 300 metres. Per unit of work, the yield of the machine was 1.6 times higher than the yield of a man employing a scythe.

As regards the work yields already mentioned, the yield of the cereal reaping machine was relatively poor, 28.2 ares per group and 10.5 ares per unit of work and per hour. It should not however be forgotten that the trials have been made under different conditions. The work was carried out with energy rather below normal; in particular much time had to be spent on reaping round the bridges over the open ditches and crossing them. The proportion of the whole time employed given to the actual reaping was 63.1 per cent., as compared with 90.8 per cent. when the ordinary reaper is employed, while 7.5 per cent. is taken up by the passing from one parcel to another, 29.2 per cent. by the turning of the machine, as compared with 9.2 per cent. if the ordinary reaper is employed; and 0.2 per cent. by chance interruptions. Per unit of work and per hour, one are less is reaped than with the scythe, since with the scythe 11.6 ares are reaped per unit of work and per hour, while with the cereal reaper 10.5 ares are reaped. As it may be desirable to make use of the reaper on small holdings, comparative investigations have been made as to the work done by the ordinary reaper and that done by the cereal reaper in the same circumstances.

4. — *Trials relating to Transport of Hay, Cereals and Stable Manure.*

The part of the results of these extensive and highly interesting trials which relates to manure will be set out later in graphs. The conclusions which most readily appear from these trials are the importance of large loads, employment of two-horse teams and a better organisation of work.

5. — *Comparative Investigations on Ploughing with two, three and four horse teams (1).*

Some further space will be given to the subject of these investigations, so as to make clearer the method of analysis of time utilised by the Association for the Rationalisation of Farm Work. In respect of each type of ploughing, Tables V, VI and VII show the precise calculations of the time necessary for each journey of the plough.

(1) *Year book of the Association for Rationalisation of Farm Work, 1927.*

	Tracing the furrow	Turning at end of field	Tracing the furrow	Turning at end of field	Unfore- seen inter- ruptions	TOTAL	Intervals	TOTAL TIME
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TABLE V. — *Autumn Ploughing. Fiskar plough No. 10, one man, two horses.*

Average figures.

Seconds	265.0	27.2	244.5	31.2	5.1	575.0	138.9	711.9
Percentage	46.3 %	4.7 %	42.7 %	5.4 %	0.9 %	100.0 %	—	—
Percentage	35.3 %	3.8 %	34.3 %	4.4 %	0.7 %	80.5 %	19.5 %	100.0 %

TABLE VI. — *Autumn Ploughing. Fiskar Plough No. 10, 3 horses one man.*

Seconds	195.2	28.1	205.9	28.9	3.8	461.9	76.3	538.2
Percentage	42.3 %	6.1 %	44.5 %	6.3 %	0.8 %	100.0 %	—	—
Percentage	36.3 %	5.2 %	38.3 %	5.4 %	0.7 %	85.9 %	14.1 %	100.0 %

TABLE VII. — *Autumn Ploughing. International two share plough, one man, four horses.*

Seconds	242.7	26.7	231.7	33.8	2.5	536.2	66.1	602.3
Percentage	43.1 %	5.0 %	43.1 %	6.3 %	0.5 %	100.0 %	—	—
Percentage	40.2 %	4.4 %	38.4 %	5.6 %	0.4 %	89.0 %	11.0 %	100.0 %

However much alike the quality of the soil and the other circumstances in which comparative investigations are made as to different methods of ploughing, the varying length and width of the parcels make comparisons difficult. In considering and comparing among themselves the results shown in Table VII, it is to be noted however that they are not definitely affected by this circumstance. In order to facilitate comparison, it was arranged in Table IX that the parcels should be 300 metres long and 20 m. wide. The soil is taken to be drained so that the parcels are really 20 m. wide without ditches. Taking as basis the comparisons relating to the duration of the intervals, which during the trials were rather too short than too long in view of the pace of the horses, for the different cases the intervals are as follows:—

one man, four horses	11 per cent.
one man, three horses	14 " "
one man, two horses	20 " "

of the actual duration of the work. Accordingly the actual duration of the work is properly as follows:—

one man, four horses	17,095 seconds
one man, three horses	34,986 "
one man, two horses	40,920 "

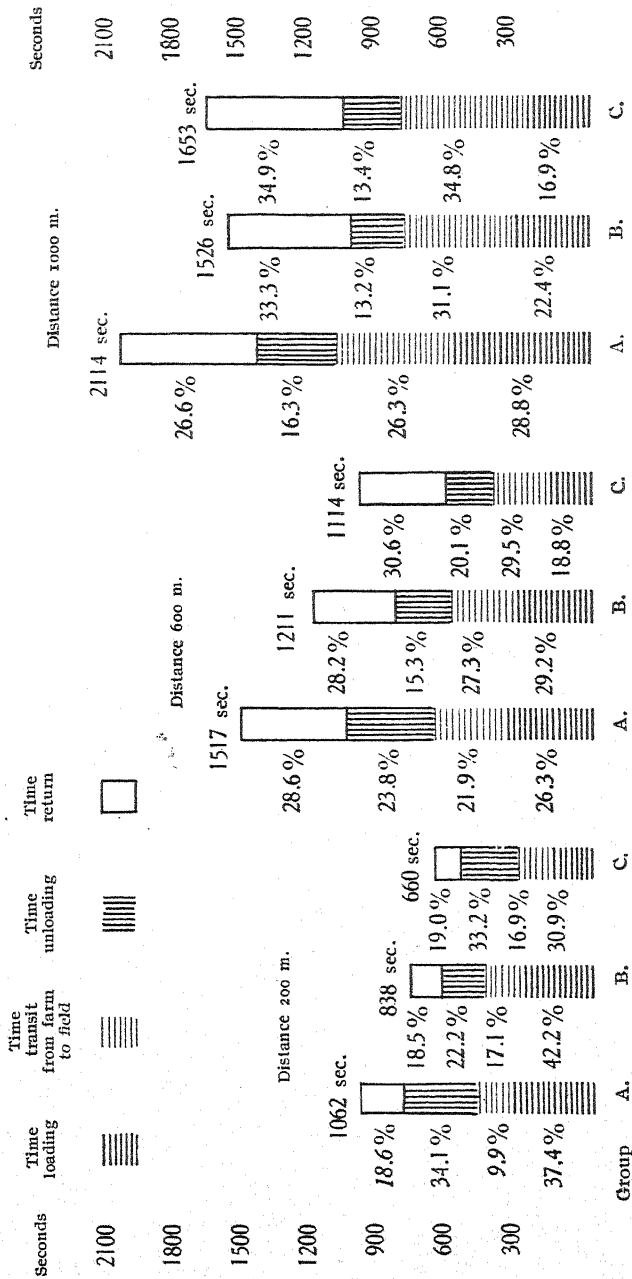
TABLE VIII. — *Autumn Ploughing. General Table.*

GROUP	Area per ha.	Work yield ha. per hour	SPEED		Ave- rage width of cut cm.	TIME								Total
			m/sec.	per m/sec.		for driving furrow		for turning		halts		intervals		
						sec.	%	sec.	%	sec.	%	sec.	%	
1 man, 2 horses.	0.98	0.11	1.07	0.93	40.0	22,929	71.6	2,596	8.2	228	0.7	6,251	19.5	32,004
1 man, 3 horses.	0.79	0.13	1.21	0.83	39.0	16,642	74.7	2,338	10.5	158	0.7	3,131	14.1	22,269
1 man, 4 horses.	1.09	0.24	1.28	0.79	32.5	12,811	78.8	1,601	9.8	68	0.4	1,785	11.0	16,265

TABLE IX. — *Time Taken in relation to the Different Methods of Ploughing.*

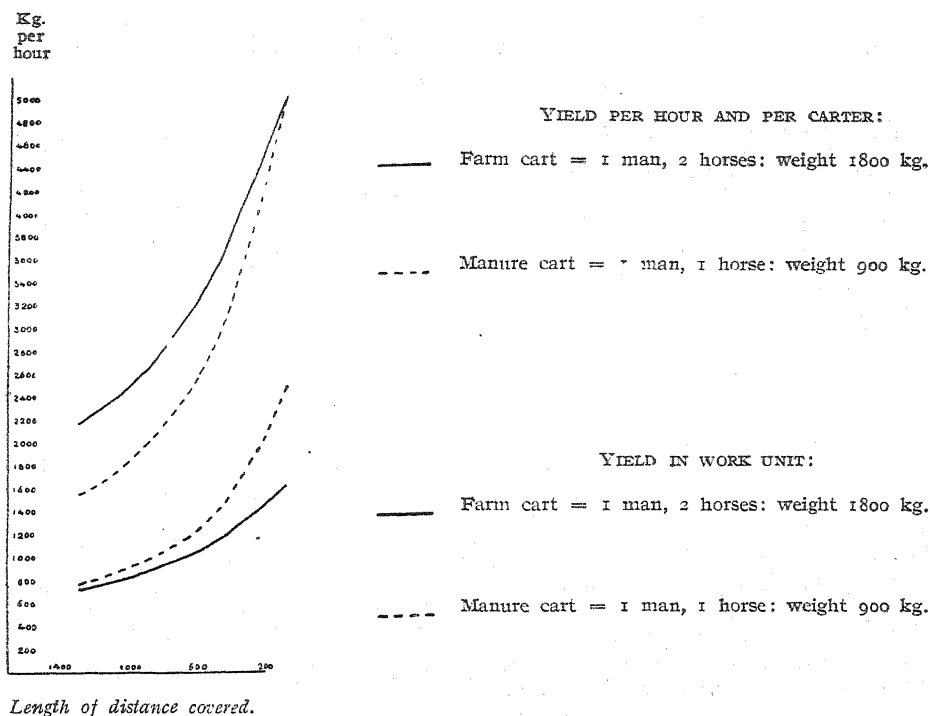
GROUP	Speed m. sec.	TIME						Total time for complete journey - sec.	Width of furrow cm.	Number of journeys	Total time sec.
		for driving furrow		for turning		unforeseen halts					
		sec.	%	sec.	%	sec.	%				
I man, 4 horses,	1.28	468	88.1	60	11.3	3	0.6	531	65	29	15,399
I man, 3 horses.	1.21	496	88.9	58	10.3	4	0.8	558	36	55	30,690
I man, 4 horses.	1.07	560	90.3	56	9.0	4	0.7	620	36	55	34,100

GRAPH NO. I. — *Transport of manure in winter — Time employed in coming and going.*



Group A. = One man, two horses a two-horse sled. Average weight of load 1487 kg.
 " B. = One man, one horse. Average weight of load 898 »
 " C. = One man, one horse, work sled. Average weight of load 525 »

GRAPH No. 3. — *Effect of the length of distance covered and of the size of the cart on the yield in transport of manure in summer.*



In all cases $300 \times 40 = 1.2$ hectares per hour were ploughed and the work yields obtained were the following:—

GROUP	Work yield per hour ha.	Work yield per hour and per unit of work ha.	Index
One man, four horses	0.25	0.05	166
One man, three horses	0.12	0.03	100
One man, two horses,	0.10	0.03	100

Thus the trials have shown that from the point of view of economy of labour it is much more satisfactory, at least on drained land, to plough with one man, four horses and a two share plough, than to plough with one man, three or

two horses and a single share plough. In judging results, the quality of the work must be taken into consideration; this is better when a two share plough is used.

6. — *Comparative Investigations on the Methods of Work Employed during the Gathering of Root-crops (1).*

The opportunity of studying the different methods of work was given by the gathering of turnips, etc. Differences in expenditure of labour resulting from different methods of gathering these crops were considerable, as the following figures show:—

Method	Index—number of the expenditure of labour
1	100
2	74.5
3	70.7
4	59.8
5	57.7
6	54.3

The labour costs necessitated by the cultivation of sugar-beet have also been studied. The two or three farms which have been taken into consideration in the following tables show very marked differences in this respect.

7. — *Comparative Investigations in regard to Methods of Drying Hay.*

These trials have shown that the most advantageous method of drying hay is that which consists in hanging it on posts or stakes, although the differences between results obtained are not very large.

The following statement gives the time required in the course of the trials for setting up the drying apparatus and for hanging the hay on it, per 1000 kg. of hay:

KIND OF WORK	Minutes of man work	Index—number	Minutes of horse work
Drying on posts	227	100.0	53
» » racks	236.3	112.5	53
» » trestles	258.8	113.5	49.4

(1) *Year book of the Association of the Rationalisation of Farm Work*, 1927, p. 57-67, and 1928, p. 45-55 and 74-78.

TABLE X. — *Expenditure of Work and Labour Costs Required by Sugar Beet Cultivation in 1928 per farm and per hectare on the Farms A, B, and C.*

	FARM A				FARM B				FARM C			
	Number	per farm	per ha.	%	Number	per farm	per ha.	%	Number	per farm	per ha.	%
		Finnish marks				Finnish marks				Finnish marks		
Days of work man	207	6,210—	609.42	15.5	690.5	20,715—	845.51	2.4	553.5	16,605—	922.50	16.2
» » woman	15	285—	27.97	0.7	20.5	348.50	14.22	0.4	—	—	—	—
» » child.	86	860—	84.40	2.1	—	—	—	—	123	1,230—	68.33	1.2
» » horse.	183	3,477—	341.22	8.7	681	14,982—	611.51	17.4	635.5	13,981—	776.72	13.7
» » tractor	6.5	1,300—	127.58	3.3	2	320—	13.06	0.4	14.5	2,900—	161.11	2.8
» » motor lorry	—	—	—	—	39	5,904.60	241—	6.8	9	900—	50—	0.9
Piecework.	—	27,935.05	2,741.41	69.7	—	43,984.40	1,795.29	51	—	66,851	3,713.94	65.2
TOTAL #	497.5	40,067.05	3,923—	100	1,433	86,254.50	3,520.59	100	1,335.5	102,467—	5,692.60	100

TABLE XI. — *Labour Costs Necessitated by Sugar Beet Cultivation
on Farms A, B, and C, in 1928.*

	FARM A			FARM B			FARM C		
	Labour costs			Labour costs			Labour costs		
	per farm	per ha.	%	per farm	per ha.	%	per farm	per ha.	%
Autumn ploughing with sub-soiling . . .	800 —	78.50	—	7,400 —	302.04	—	3,972 —	220.67	—
Transport of manure	—	—	—	—	—	—	3,407 —	189.27	—
Manure spreading	—	—	—	—	—	—	768 —	42.57	—
Transport and spreading of manure . . .	—	—	—	—	—	—	5,450 —	302.78	—
Transport and spreading of chemical fertilisers	401.50	39.40	—	1,202 —	49.06	—	3,085 —	171.39	—
Turf removal with harrow	—	—	—	222 —	9.06	—	222 —	12.33	—
Cultivation prior to sowing	992 —	97.40	—	2,621 —	106.98	—	3,212 —	178.44	—
Sowing	294 —	28.85	—	1,209.50	53.04	—	1,303 —	72.39	—
Rolling	24.50	2.40	—	—	—	—	—	—	—
Cleaning of ditches	—	—	—	195 —	7.96	—	—	—	—
Harrowing	2,097.50	205.85	—	5,028 —	205.22	—	6,127 —	340.39	—
Thinning	10,011 —	982.43	—	19,931.65	813.54	—	16,291.55	905.09	—
Removal of stamens	565 —	55.45	—	102 —	4.16	—	—	—	—
Harvesting operations and transport to barns, etc.	13,016.62	1,277.40	—	30,742.75	1,254.81	—	29,885 —	1,660.28	—
Transport to factory or warehouse . . .	11,339.43	1,112.80	—	17,510.60	714.71	—	25,194.45	1,399.69	—
Other labour costs	525 —	51.52	—	—	—	—	3,550 —	197.22	—
TOTAL . . .	40,067.05	3,932 —	—	86,254.50	3,520.58	—	102,467 —	5,692.61	—

Under the conditions obtaining in Finland other methods are not satisfactory, but these indicated are in general use and hay so treated dries well even in unfavourable weather provided it is carefully spread on the supports. If violent rains occur and soak the hay on the posts it needs to be spread out again, but such rains are of rare occurrence in Finland.

8. — *Trials in regard to Farm Carts, etc., in Finland (1).*

In 1929 trials were made of farm carts in Finland, with special attention to the advantages resulting from their construction and load capacity. It was desired to establish types of home built vehicles and to ascertain which of these were the most suitable for farm use. Results were published in the Year books of the Association for Rationalisation of Farm Work.

9. — *Investigations into Methods of Laying on Water for Household Use and for Watering of Stock with Respective Costs (1).*

The result of these investigations was also published in 1929. Enquiries were made as regards the difficulties encountered on many farms in obtaining supplies of drinking water and water for other household purposes. At the same time costs of construction were calculated, with a view to showing how the farmer might obtain water to best advantage.

* * *

These trials are repeated every year; figures representing work yield are entered on the appropriate tables; and the greatest number possible of operations are carried out in differing conditions. The material obtained by the trials was collected in 1929 and the results published in the "Agricultural Calendar" which has thus replaced obsolete tables relating to work yield also prepared by the Association for Rationalisation of Farm Work.

Farmers have readily undertaken the trials carried out on their farms and often without making any claim for compensation, but at the same time the activity of the Association for Rationalisation of Farm Work has been greatly hampered by the absence of an experimental farm of its own as well by the want of available funds. It is anticipated that in the near future these trials will be made on a farm specially devoted to the purpose and independently managed.

(1) *Year book of the Association for Rationalisation of Farm Work, 1929.*

V. — SOME RESULTS OF ENQUIRIES ON THE UTILISATION OF FARM MACHINES (1).

Agriculture has become rapidly mechanised in Finland during the last few decades, and it is beyond dispute that this development has brought about a remarkable improvement in Finnish agriculture. The economy of labour resulting from the employment of machinery is undoubtedly very great, and the large number of machines has greatly contributed to bringing about equalisation of work. In addition the employment of machines results in better work, and work which apart from machinery would be troublesome and disagreeable is made much less so. Apart from the numerous advantages resulting from the use of machinery, it may be noted that sound economic principles have not always been followed in procuring machines. Their utility has been overrated and they have been purchased without calculation of their actual utility. The machine has effected a reduction and an equalisation in the expenditure of labour, the result may be better work, but apart from these advantages the use of machinery has merely increased the labour costs.

Machinery has accordingly reduced the earning capacity of the farm holding, although all efforts have naturally tended or should tend to achieve the contrary. This result must be primarily attributed to the fact that the annual duration of the utilisation of the machine is very short in agriculture. In addition to the expenses necessitated by the use of the machine, its owner is rendered liable for other fundamental expenses, interest charges, ruinous depreciation and upkeep costs, whether the machine is used or not. Considerable utilisation of a machine over a year involves higher fundamental expenses than a minimum employment, but per hour of work such expenses are greater with the minimum utilisation.

Utilisation of machines over one year has a decided effect on the costs of the labour which the machine replaces. It is recognised that in agriculture in general the period of utilisation of machines, especially on small farms, is relatively short and that in consequence costs per hour of work are remarkably high. Precise figures are however not available as to the employment of machines on farms of different sizes, and consequently it is not possible to make calculations before purchase of machines. Such figures if available would form valuable material for advisory work in agriculture.

Some results will later be given of enquiries made into the length of time for which machines can be utilised. These enquiries relate to the period included between 1929 and 1930 on forty farms belonging to the Supervisory Office of the Administration of Agriculture, where the accountancy results are kept. The material of the enquiries has been collected by R. Tienari in his doctorate thesis entitled "Utilisation and Yield of Machines in Agriculture" in accordance with instructions from the Association of Rationalisation for Farm Work (2).

(1) *Maatalous*, No. 9, 1931.

(2) See also: HEINE MYLLÄRNIEMI. *The better outturn of agricultural machines.*

The farms on which the surveys have been made are for the most part in the South of Finland, where 67.5 per cent. of the farms keep accounts. The remainder were distributed fairly evenly between the other farms keeping accounts, except that in Southeast Finland no farm was placed under survey for this purpose. The farms were divided according to the quantity of land cultivated into three size classes, the first class grouping farms with from 7.69 to 16.88 hectares of fields, the second class farms with from 19.42 to 29.98 hectares and the third class with from 30.10 to 90.08 hectares. Thirteen farms were in this way included in the first class, 14 in the second and 13 in the third.

The proportion of the fields in the different classes of farms under survey is shown in Table XII. The percentages show that the number of the different crops cultivated in the second and third class does not vary markedly. On the other hand, the first size class is differentiated from the others by the relatively small proportion under fallow and the relatively large proportion under root crops and potatoes.

TABLE XII. — *Average Cropping Utilisation in the Fields of Different Size Groups of Farms under Survey.*

	I (11.66 ha.)		II (24.62 ha.)		III (51.48 ha.)	
	ha.	%	ha.	%	ha.	%
Winter wheat	0.58	5.77	1.84	8.28	3.76	7.64
Spring wheat	2.76	27.44	5.73	25.78	14.43	29.34
Potatoes.	0.46	4.58	0.56	2.52	0.95	1.93
Rootcrops and fodder cabbage	0.59	5.86	0.73	3.24	1.08	2.19
Flax and hemp	0.01	0.09	0.03	0.13	0.01	0.02
Hay for seed	0.06	0.59	0.43	1.93	0.42	0.85
Hay for forage	4.42	43.94	0.06	40.76	18.94	38.52
Hay for pasture	0.59	5.86	2.03	9.16	4.64	9.44
Green forage.	0.26	2.59	0.27	1.23	1.73	3.52
Fallow	0.33	3.28	1.55	6.97	3.22	6.55
TOTAL . . .	10.06	100	22.23	100	49.28	100

Generally speaking it appears from this table that in respect of the use of farm machines there should be no great difference between one size group and another. Since the proportion reserved for crops increases in proportion to the area of cultivated land, the size of the farms must be the factor governing the employment of and necessity for the different machines. It may be assumed that the smaller farms are farmed more intensively and give higher yields per hectare than the larger farms, and it may be that the work of machines on farms of less extent, although more costly per hectare and per unit of production, would be in itself as cheap as or even cheaper than on the larger farms. In general the yield per

hectare has been the same, showing that the intensity is also the same on the farms of different size classes.

The number of machines utilised and their quality vary considerably between one size group and another. In Table XIII are shown the average numbers of the more important machines on the farms of different size groups per 100 kinds of crop and per 100 hectares of arable land.

TABLE XIII. — *Average Numbers of the More Important Machines on the Farms of Different Size Groups per 100 kinds of crop and per 100 hectares of arable land.*

	Per 100 kinds of crop			Per 100 hectares		
	I	II	III	I	II	III
	(11.66 ha.)	(24.62 ha.)	(51.48 ha.)	(11.66 ha.)	(24.62 ha.)	(51.48 ha.)
Tractor machines	43.7	59.5	114.1	3.75	2.41	2.22
Transplanting machines. . .	52.0	66.4	98.7	4.48	2.69	1.91
Grading machinery.	98.5	86.6	176.9	8.44	3.52	3.43
Ploughs	207.7	221.4	384.6	17.81	8.92	7.46
Ploughs for ditching	1.9	15.5	29.5	0.17	0.63	0.57
Harrows.	317.9	372.6	603.8	27.26	15.14	11.62
Potato lifters	9.2	28.6	52.5	0.79	1.13	1.03
Mowers	78.8	125.0	153.8	6.76	5.06	2.98
Horse drawn reapers	76.9	100.0	107.7	6.59	4.06	2.09
Harvesters.	7.7	—	69.2	0.66	—	1.34
Seed drills.	42.3	45.2	107.7	3.62	1.93	2.09
Hayseed drills.	8.6	27.7	53.8	0.74	1.11	1.05
Rootcrop seed drills	48.7	46.4	69.2	4.17	1.69	1.34
Horse drawn harrows. . . .	38.5	35.7	71.8	3.29	1.45	1.39
Steel and concrete rollers. .	30.8	46.4	111.5	2.62	1.69	2.16
Ground rollers.	76.9	35.7	46.2	6.27	1.45	0.89
Straw cutters	64.1	82.2	115.4	5.49	3.33	2.24

According to Table XIII the third size group own the largest number of machines per 100 kinds of crop, with the exception of the ground rollers of which the first class own the largest number. The second class own fewer than the first, per 100 kinds of crop, of grading machines, of rootcrop seed drills, of horse drawn harrows and of ground rollers. The table shows that the number of machines per 100 kinds of crop increases in proportion to the size of the farms. The small farms have more machines than the large per 100 hectares. Thus the number of machines of the second size class is only a little lower than that of the third class. It should be noted that the table, for each size group, takes account only of the more important machines. All farms have given information relating to 31 machines of different kinds, while they have not been able to take into consideration certain machines such as, for example, cream separators, potato mills, planing machines and pumps, for the reason that there was no complete information relating to their employment.

In Table XIV relating to the periods over which the machines are utilised, the more important machines only have been taken into consideration. The table shows, in hours of work, the period of utilisation of some of the more important machines, calculated on an average of 40 farms employing machines which have kept accounts in 1929-30. The largest use has been that of the plough and the harrow. Since according to Table XIII, for each crop, the first size class used on an average 2.1 ploughs, the second class, 2.2 ploughs, and the third class 3.8 ploughs the work time in hours for the respective classes is 54.7, 109.5 and 130.2 hours. The number of harrows necessitated by each crop is, for the first size-group, 3.2, for the second 3.7 and for the third class 6.0, so that the number of work hours for each harrow for the respective classes is 35.6, 61.6 and 68.8 hours. It should be noted that the smallness of the figures depends on the fact that the farms always have ploughs and harrows which are no longer in use or very rarely so, but are included on the inventory. In any case ploughs and harrows are admittedly the most indispensable of farm machines and those of highest work yield, although a farm ought not to retain useless machines. On the other hand, the yearly period of utilisation of the other machines is decidedly short.

TABLE XIV. — *Period of Utilisation of some of the More Important Machines, Calculated in Work-hours on an average of 40 Farms Employing Machinery and Keeping Accounts under the Administration of Agriculture in 1929-30.*

	TOTAL OF WORK-HOURS DURING THE YEAR		
	size-group		
	I	II	III
Ploughs	115	241	495
Ditching ploughs	13	10	23
Harrows	114	228	413
Potato lifters	15	15	19
Transplanters	29	52	93
Grading machines	15	30	48
Reapers and mowers	20	44	70
Harvesters	10	—	72
Horse drawn harrows	14	32	68
Seed-drills	28	47	98
Hay seed drills	2	9	16
Rootcrop seed drills	11	11	16
Manure spreaders	19	48	53
Ploughs of a special type	40	52	—
Sieves	—	20	19
Rollers	13	28	52
Clod breakers	3	12	20

As regards the more costly machines, *e. g.*, transplanters, potato lifters, grading machines, reapers and harvesters, as well as manure spreaders, their period of utilisation considerably increases the cost price of Finnish agriculture. To

bring this fact out more clearly a calculation has been made in Table XV of the fundamental average expenditure on certain machines per work hour taking as a basis the present prices of these machines and estimating the rate of interest at 7 per cent.

In establishing this table it has been assumed that the machines corresponding to the different size classes of farms have the same base value, which is the case with the transplanters on the farms under survey.

TABLE XV. — *Basic Costs of Certain Machines in Different Size Groups per Work Hour in Finnish marks.*

	SIZE GROUP		
	I	II	III
Plough,	1.16	-.66	-.57
Seed drill	9.90	6.80	6.50
Reaper ,	17.70	14.10	11.60
Transplanter	37.30	24.30	21.40

The results of the investigations show that the employment of machines in Finnish agriculture, in any case on the comparatively small number of farms on which these surveys have been carried out, is very extensive, and on the small farms even more so than is advisable taking the balance sheet as a whole into consideration. This latter statement finds its justification in the remarkably short period of yearly utilisation of the machines which accounts for a large proportion of the basic expenditure calculated on cost of the work hour. Farmers purchasing and employing machines are entirely in the right if they have recourse to joint employment with other farmers, thereby increasing the total hours work during the year, and decreasing the costs of labour replaced by machinery.

VI. — ADVISORY WORK OF THE ASSOCIATION FOR RATIONALISATION OF FARM WORK.

The Association for Rationalisation of Farm Work has done active work also in the sphere of consultation, instruction and explanations, and in recent years increasing attention has been directed on these branches of its activity. In connection with courses held by agricultural organisations, lectures have been given on the work of the Association. Special courses have also been organised, as well as lectures and trials relating to farm work; special illustrative graphs, etc., have

been sent to agricultural shows; and the farmer has been kept in touch with the results of investigations by means of articles in technical agricultural journals, broadcast talks and cinematographic representations. The Association also devotes much activity to the work of instruction, and during the summer courses held at the agricultural schools arranges courses on investigations effected and also organises practical work relating to efficiency checks. The students of rural economy in the agricultural and forestry department of the University of Helsinki are expected to prepare articles relating to scientific organisation and to carry out investigations, etc.

It may be mentioned in conclusion that the Association for Rationalisation of Farm Work has from the day of its foundation worked in close collaboration with the Committee on Efficiency of the Northern Society of Students of Agriculture (*Nordiske jordbruksforskarens Förening*). The Association has also taken steps to catalogue the bibliography relating to the investigations made in Finland in regard to agricultural work, and thanks to the support received from the Northern Committee of agricultural technicians, this undertaking is already in progress.

For the Association for Rationalisation of Farm Work in Finland

Prof. K. T. JUTILA, *President*.

P. EKKO, Mag. agr., *Director and Manager*.

LAND SYSTEMS

The Agrarian Reform in Estonia (*Conclusion*).

IV. — THE RESULTS OF THE NEW LAND SYSTEM (*continued*).

The Trade in Agricultural Products.

As the agrarian reform has left untouched only a small part of the large farms (those cultivated by the State, by the towns, by the various organisations and by certain individuals), these farms do not play a very important part in supplying agricultural produce to the market. The greater part of the agricultural produce coming on the market is placed on sale by the small farms.

Unfortunately no statistics are available of the pre-war trade and, consequently, to obtain an approximate idea, we must content ourselves with statistics for the period of the agrarian reform. The statistics show that the small farms place a comparatively large part of the production on the market. Thus,

during the economic year 1927-28 the produce placed on the market by the farms was as shown in the following table :

TABLE VI. — *Produce placed on the Market by Farms in 1927-28.*

SIZE-GROUP	Per farm	Per hectare of agricultural land cultivated	Per 100 crowns of total capital invested	Percentage of total production
	crowns	crowns	crowns	
Up to 20 hectares.	1,437.17	96.32	17.43	53.41
20 to 30 hectares.	1,878.07	74.88	16.92	55.47
30 to 60 hectares.	2,784.20	65.82	17.02	59.87
Over 60 hectares	4,438.91	52.02	16.42	64.45
Average ,	2,675.86	63.95	15.67	59.75

The corresponding average figures for three years (1926-29) are 2,569.32 ; 62.88 ; 16.15 and 58.12.

In general, the external trade in agricultural products has developed as production has increased.

The imports and exports of agricultural products were :

YEARS	Imports		Exports	
	Thousands of crowns	Percentage	Thousands of crowns	Percentage
1923	19,726	44	24,632	56
1928 (1)	38,529	39.7	58,642	60.3
1929	35,197	38.8	55,420	61.2
1930	21,439	33.04	43,444	66.96

(1) The imports in 1928 were exceptional, on account of the bad harvest.

The imports were mainly cereals, concentrated feeds and chemical fertilisers; the exports, on the contrary, consisted principally of butter, eggs, meat, flax and potatoes. Estonia is not an exporter of cereals, nor was it before the agrarian reform.

The relation between exports of agricultural products and the general exports is shown in the following table :

YEARS	Total exports	Exports of agricultural products	Exports of agricultural products as percentage of total production
	CROWNS	CROWNS	
1923	61,818,000	24,632,000	25.1
1925	96,650,000	43,425,000	44.9
1928	127,109,000	58,642,000	46.1
1929	117,471,000	55,420,000	47.2

In Estonia, the trade in agricultural products is partly in the hands of private merchants and partly in those of co-operative institutions. It is through the medium of these latter that the greater part of the butter, eggs, bacon and alcohol is exported and that concentrated feeds, chemical fertilisers and machines are imported.

After the War of Liberation, a great impetus was given to co-operative trading. The turn-over of the central trading societies of the Central Consumers' Co-operative Society of Estonia (E. T. K.), which acts as an importer of goods (particularly of agricultural implements and other requisites) and of the central agricultural co-operative society "Estoni", through which agricultural products are exported, increased in the course of ten years from tenfold to a hundredfold, as may be seen from Table VII (page 252).

In the local consumers' co-operative societies the turn-over has increased in the same proportion.

The marketing of agricultural products has been as much as possible encouraged by the Government by means of an organisation of transport corresponding to the conditions of the market. Thus new railways have been constructed (340 kilometres) as well as railway wagons with the necessary equipment which serve the principal markets, new roads have been constructed and existing roads have been repaired. (The State undertakes the maintenance of the more important roads). As a result of these measures the cost of transport has, of course, fallen, but, on the other hand, in many cases the new roads have rendered it possible for districts to supply the market which formerly were not able to do so.

Speaking broadly, it must be noted that the agrarian reform has strongly influenced the external trade in agricultural produce, in the sense of having brought about a development of the export of butter, eggs and bacon. Before the agrarian reform the principal articles produced for export by the large farms were alcohol (to the inland provinces of Russia) and milk (to the capital of Russia, St. Petersburg) and by the small farms, flax (exported to foreign countries) and meat.

TABLE VII. — *Purchase and Sale of Goods by Co-operative Societies for Purchase and Sale and Consumers' Co-operative Societies* (in thousands of crowns).

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
Central Consumers Co-operative Society of Estonia (E. T. K.)	384 (22,235)	2,110 (47,435)	8,857 (61,350)	15,389 (100,999)	12,134 (78,509)	12,153 (96,546)	14,360 (95,570)	14,272 (96,417)	14,035 (131,373)	19,325 (122,967)	20,977 (98,370)
Central Co-operative Society "Estonia"	42 (19,588)	140 (24,197)	1,420 (52,827)	4,939 (61,817)	6,281 (75,271)	9,392 (96,646)	16,624 (96,236)	20,386 (105,776)	20,955 (127,109)	23,694 (117,471)	24,898 (96,434)
Local consumers' co-operatives societies (1)	854	4,721	8,747	16,031	19,444	22,806	27,269	26,662	26,008	32,682	34,795
Total per co-operative society .	6	30	65	75	91	119	129	131	138	157	172

N. B. — The figures in brackets in the foregoing table are the corresponding figures for the total imports (E. T. K.) and for exports ("Estonia"), but the figures are not quite comparable, as a part of the business of the two central co-operative societies consists of purchases and sales within the country itself.

(1) In 1930, the local consumers' co-operative societies numbered 250; in this table figures are given for the turn-over of 202 societies, the others not having published statistics.

Prices of Agricultural Products.

The prices of agricultural products in Estonia depend, in the main, on prices in the foreign market. This is particularly the case for the more important exportable foodstuffs, that is, butter and meat. The prices of imported products (wheat, rye) also depend to a certain extent on prices in the foreign market, but less so than those of exported products. (Wheat is subject to an import duty, while the importation of rye is a State Monopoly). The prices of foodstuffs increased up to 1928, with rare exceptions. From that year onwards there was a continuous fall in prices, as may be seen from the following table.

Prices of the Principal Articles of Food (in crowns).

YEARS	Rye per 100 kg.	Potatoes per 100 kg.	Butter per kg.	Eggs per 360	Sugar per 100 kg.	Salt per 100 kg.	Pork first quality, per kg.	Beef first quality, per kg.
1922.	17.39	3.90	2.24	24.33	46.15	2.63	0.68	0.34
1923.	14.89	5.31	2.47	27.23	58.42	2.42	0.93	0.47
1924.	18.68	5.55	2.97	33.14	61.11	3.41	0.96	0.61
1925.	21.12	5.46	2.95	30.43	44.68	3.28	1.13	0.66
1926.	16.97	3.78	2.56	28.79	41.51	3.44	1.14	0.63
1927.	20.26	4.18	2.69	30.29	46.09	3.23	0.88	0.53
1928.	20.75	7.08	2.95	37.32	40.35	3.29	1.01	0.56
1929.	15.91	5.46	2.86	35.73	35.42	3.72	1.14	0.64
1930.	11.84	3.54	2.23	28.74	29.32	3.40	0.96	0.54

In comparing the prices of foodstuffs with those of industrial products, it is necessary to distinguish between national industrial products and imported industrial products: the prices of the former have remained fairly steady, while those of imported products have continually fallen.

On this subject, we give the index-numbers of wholesale prices compiled by the Central Bureau of Statistics of Estonia, the prices of 1913 being taken as equal to 100.

	1913	1922	1923	1924	1925	1926	1927	1928	1929	1930
Foodstuffs.	100	97	115	117	126	114	108	128	129	102
National industrial products	100	128	128	118	129	121	127	139	133	126
Imported industrial products	100	119	108	103	103	99	94	87	92	88
General index . . .	100	113	114	116	124	114	144	121	117	102

The movement of prices on the domestic market for the principal agricultural products is influenced by price-conditions on the world market.

It is only the price of rye which has been withdrawn from this influence since 1930, the year in which a State monopoly was introduced for rye.

The prices of agricultural products in Estonia are more or less uniform throughout the country, as the population is not very dense, the territory is small and transport conditions are satisfactory. Consequently the density of the population and the intensiveness of agriculture have only slight influence on prices and it is only in the islands, Saremaa and Hiin where, in comparison with the mainland, agriculture is extensive and where communication with the trading centres of the principal articles of commerce is difficult, especially during the winter months when the sea is frozen, that prices are lower than on the mainland.

Emigration.

As has been said, Estonia is rather thinly populated and if before the declaration of independence the people emigrated all the same in large numbers, this was not due to too great density of population, but rather to the want of opportunities for obtaining land and to the hard conditions of existence. The agrarian reform created new conditions of life and thus brought about a diminution of the emigration. Before the war the number of emigrants was estimated at about 10,000 a year, while now the number has fallen to one or two thousand, which, in relation to other European countries, may be regarded as a normal emigration.

According to figures supplied by the State Central Bureau of Statistics the number of emigrants from Estonia since the declaration of independence was as follows:

	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
Total number . . .	179	790	328	1,222	2,676	2,426	2,622	1,293	1,439	1,005
Per 1,000 inhabitants	16	71	30	110	272	219	237	117	130	91

In reality the number of emigrants during the years 1921 to 1923 was greater, as we have already stated, since the emigration was counterbalanced by the immigration of Estonians returning from Russia. The increase in the emigration in the years 1925 to 1927 is explained by the departure of those who had remained in Estonia but then definitely emigrated, and in part also by a reorganisation of the economic life on a peace-time basis which reduced a part of the inhabitants of the towns to unemployment.

The actual density of the population is not uniform throughout the country; some regions, like that of Petschori and some communes on Lake Peipus, on

the Gulf of Riga and also on the Island of Ösel (Saaremaa) have a density of population greater than the average for the whole country (17.5 persons per square kilometre). But too much importance must not be attributed to this fact in connection with emigration, as there are still possibilities of obtaining land in the interior of the country in thinly-populated regions, and, moreover, the smallness of the country enables the inhabitants of the more densely populated regions to find work in the districts where there are fewer inhabitants (work in the forests and in the slate quarries). The inhabitants of the coast find possibilities of earning money in fishing and in navigation.

Generally speaking, the price and the rent of land are higher in the densely populated districts than elsewhere, but there, too, may be noted a tendency to a levelling down of prices and it may be anticipated that, as a result of the settlement activity of the State and of home colonisation in general, the differences between the prices in the different regions will, in the future, be reduced to a minimum. This question has not yet been studied in detail and accordingly it is not possible to give statistics relating to it.

As to the relation between the urban and rural population, it has remained unchanged. It is true that the population of certain towns (Narva, Haapsalu, Kuresaare, Paide, Paldiski) fell by 2,423 between 1922 and 1930, but, on the other hand, the population of other towns has increased. In general the number of inhabitants of the large towns and small market towns increased, from 1922 to 1930, by 38,734. Where the population has chiefly increased is in the market towns situated in the open country (3,177) and in the small towns (14,553), and this must be considered as definitely a result of the agrarian reform. At the same time the agrarian reform has increased the purchasing power of the rural population and also the general level of economic life. That is why, by the side of the new settlers, artisans, manufacturers and traders have found means of livelihood.

The agrarian reform has, in addition, encouraged the formation of market towns and small towns by rendering possible the purchase, on favourable conditions, of parcels of land on which to build dwelling-houses (*Heimstätten*) on lands belonging to the State and allocated for the enlargement of towns.

It is true, however, that some of the town-dwellers were also set up as farmers, especially those who took part in the War of Liberation and accordingly had the privilege of obtaining land. There are no precise statistics of this type of settler established in the country, but it may be supposed that they were sufficiently numerous to prevent the towns from growing at the expense of the country districts.

Broadly speaking, the agrarian reform has reduced both emigration and the rural exodus.

Insurance in Country Districts.

There is no social insurance in Estonia and all insurance is due to private initiative. The insurance of buildings against fire has increased. The buildings on settlement holdings are subject to compulsory insurance against fire under

agreements made or obligations incurred. Property serving as guarantee for State loans must also be insured. But in the old peasant holdings also the buildings are usually insured. Other branches of insurance are still little practised in the country, but latterly life insurance, live stock insurance and hail insurance are growing in favour.

On the whole, insurance has greatly increased since the declaration of independence, as may be seen from the following table :

YEARS	Fire insurance	Life insurance	Live stock insurance	Hail insurance
	thousands of crowns	thousands of crowns	thousands of crowns	thousands of crowns
1922	274,406	659	..	..
1925	552,436	3,931	..	..
1929	949,326	23,022	672	169

In Estonia insurance is in the hands of private organisations. Thus in 1929 there were in all 20 insurance companies of a certain importance, ten of which were share companies and ten were mutual societies. Besides these companies there exist in most of the rural communes mutual fire insurance societies. Fire insurance is effected both by share companies and by mutual societies, whereas life insurance and other forms of insurance are, in the main, effected by share companies. As to the extent of the insurance effected by the communal mutual societies no statistics are available.

Taxes paid by Farmers.

The taxes paid by farmers in Estonia are comparatively small and the payment does not weigh heavily on them. Landowners have to pay the following taxes : (a) the State real property tax ; (b) income tax, and (c) personal tax.

The property tax is paid by landowners on the basis of the estimated value of their lands in the following proportions : 0.21 crowns per rouble of net return or about 0.50 crowns per hectare of cultivated agricultural land. The autonomous administrations are authorised to impose for their own purposes an additional tax of 25 per cent. of the property tax, so that the maximum rate of the property tax is 0.26 crowns per rouble of net return, or 0.63 crowns per hectare of cultivated agricultural land.

The income tax is assessed on the actual income of those landowners who keep their accounts systematically. But the majority of the landowners pay on the basis of an average income fixed by the tax administration. In recent years (1930 and 1931) this has been 6.50 crowns per rouble of net return or 16 crowns per hectare. During the first seven years after they begin to cultivate

the land (years of establishment) the average income of settlers is taken as being 25 per cent. less. In cases of disaster, the tax administration can reduce the taxes by 50 per cent.

The number of farmers who were obliged to pay income tax was 40,245, that is, one-third of all the farmers and 39 per cent. of all the citizens paying income-tax. The average income tax paid by farmers was 17.28 crowns per year.

The personal tax is imposed in favour of the communal autonomous administrations on every adult living in the country, the amount being fixed by the administrations themselves. Taking the average for the whole country, the personal tax in 1929 amounted to 6.92 crowns per citizen, 42 % of the rural population being subjected to this tax.

According to the accountancy statistics the taxes on the landowners in 1929 were as follows :

SIZE-GROUP	Per farm	Per hectare of cultivated agricultural land	Percentage of cost of production
	crowns	crowns	%
Less than 20 hectares	36.81	2.39	1.26
From 20 to 30 hectares	42.47	1.69	1.16
From 30 to 50 hectares	68.44	1.73	1.34
Over 50 hectares	104.35	1.41	1.54
Average	68.15	1.76	1.80
Five-year average	81.54	2.02	1.47

Besides these direct taxes a part of the indirect taxes also affect the landowners. Unfortunately no statistics are available to indicate the amount.

By way of comparison, it may be noted that, before Estonia became independent, the landowners paid on the average towards the cost of the local autonomous administrations 6 to 10 Russian kopeks per rouble of net return, that is 15 to 25 kopeks per hectare. In addition, the owners of peasant farms had to repair the roads and do other forced works, from which the farmers of to-day are more or less free.

The Farmer's Balance-sheet.

Only a small proportion of Estonian farmers keep systematic accounts. Statistics on the profit-earning capacity of agriculture are collected by the Agricultural Accountancy Office (*Põllumajanduslik Raamtupidamistalitus*). Founded by the largest central organisation of the farmers (*Eesti põllumeeste keskelts*), this institution has since 1925 organised the keeping of accounts by farmers. In 1929-30 there were 421 farmers who kept accounts under the supervision of the Accountancy Office. In addition, there were 5 independent accountancy co-operative societies and clubs with 57 members.

In Estonia, a country of small farmers, the peasant holdings are primarily places where the family of the owner finds its work and its maintenance. The return on capital is comparatively small. According to the information furnished by the Accountancy Office, the average net return expressed as a percentage of the total capital invested was :

	1925-26	1926-27	1927-28	1928-29	1929-30	Average
Net return per hectare of cultivated land, in crowns. .	12.77	5.03	14.00	9.37	7.93	9.81
Return (per cent.)	3.07	1.26	3.43	2.27	1.79	2.36

In consequence of the low general return the interest earned on the family capital is small in comparison with the return on total :

	1925-26	1926-27	1927-28	1928-29	1929-30
Return per hectare of the cultivable agricultural land, in crowns	9.84	3.24	11.68	5.57	4.21
Return as percentage of family capital	2.36	1.01	3.37	1.42	1.25

In the agricultural year 1929-30, the net return per hectare of cultivable agricultural land, the profit-earning capacity as a percentage of the working capital and of the total assets was as follows for the different types of peasant farms :

SIZE-GROUPS	Net return per hectare of cultivable agricultural land	Return as percentage of the working capital	Return as percentage of the family capital
Up to 20 hectares (1)	8.05	1.65	1.18
From 20 to 30 hectares (1)	8.77	1.96	1.52
From 30 to 50 hectares (1)	9 —	2.06	1.61
Over 50 hectares (1)	4.68	1.39	0.67

(1) The corresponding average sizes, in hectares of cultivable agricultural land, were: 15.40; 25.13; 39.56; 74.01. The smallest was 4.40 hectares and the largest 139 hectares.

The average receipts (total income) and expenditure (working expenses) of the farmer in 1929-30 in the different types of farm were:

SIZE-GROUP	Total income		Working expenses		Net income	
	Per farm	Per hectare of cultivable agricultural land	Per farm	Per hectare of cultivable agricultural land	Per farm	Per hectare of cultivable agricultural land
	crowns	crowns	crowns	crowns	crowns	crowns
Up to 20 hectares	2,579.35	167.49	2,455.38	159.44	123.97	8.05
From 20 to 30 hectares . . .	3,210.86	127.77	2,990.47	119.00	220.39	8.77
From 30 to 50 hectares . . .	4,431.91	112.03	4,075.87	103.03	356.04	9.00
Overs 50 hectares	5,658.80	76.46	5,312.44	71.78	346.37	4.68

The income of the farmers consists, according to the information supplied by the Accountancy Office, in the main, of the receipts from agricultural production.

In 1929-30, the total income was thus distributed (by percentages) in the different types of holding:

SIZE-GROUP	Increase of supplies on land and of field inventory	Arable farming	Animal husbandry	Other source of income
Up to 20 hectares	4.71	24.41	58.85	12.03
From 20 to 30 hectares	5.30	22.33	59.51	12.86
From 30 to 50 hectares	4.79	23.38	58.57	13.26
Over 50 hectares	6.80	23.70	57.59	11.91

The earnings for work done outside the holding are trifling. The following table compiled from statistics supplied by the Accountancy Office shows the situation in detail:

SIZE-GROUP	Total cash receipts		Receipts not derived from the farm (1)			
			For work done by horses (animal husbandry account)		For work done outside the farm	
	Per farm	Per hectare of cultivable agricultural land	Per farm	Percentage of total cash receipts	Per farm	Percentage of total cash receipts
Up to 20 hectares	1,493.96	97.01	18.79	1.41	12.48	0.83
From 20 to 30 hectares . . .	1,940.64	77.20	8.54	0.53	4.78	0.24
From 30 to 50 hectares . . .	3,154.51	79.74	8.30	0.34	5.54	0.17
Over 50 hectares	3,575.42	48.31	5.18	0.18	5.42	0.15

(1) Item "Other sources of income."

Of the total return of the farms, on the average 42 per cent. is reserved for consumption on the farm and 58 per cent. is sent to market, the consumption on the farm and the produce marketed being about twice as much per hectare of cultivable agricultural land on the small farms as on the large farms :

SIZE-GROUP	Consumption on the farm			Production for the market		
	Per farm	Per hectare of cultivable agricultural land	Percentage of total production	Per farm	Per hectare of cultivable agricultural land	Percentage of total production
	CROWN\$	CROWN\$		CROWN\$	CROWN\$	
Up to 20 hectares	1,037	67.34	43.15	1,366	88.70	56.85
From 20 to 30 hectares	1,434	57.06	45.05	1,749	69.60	54.95
From 30 to 50 hectares	1,816	45.90	41.58	2,552	64.51	58.42
Over 50 hectares	2,239	30.25	38.97	3,507	47.39	61.03

Of the expenses incurred in working the farm 62 per cent. on the average was in respect of labour and 38 per cent. in respect of other working expenses, for example, additional purchases, repayment of debts, etc. This proportion is nearly constant in all the size-groups (in the small farms of less than 20 hectares, 63.28 and 36.72 per cent. and in the large farms of more than 50 hectares, 60.48 and 39.52 per cent. The greater part of the expenses in respect of labour is represented by the wage claim for unpaid labour of the operator and his family: in small farms this represent 78 per cent. of the total labour costs; in the farms from 20 to 30 hectares, 76 per cent.; in those from 30 to 50 hectares 59 and in the large holdings 54 per cent.

The labour costs in 1929-30 were as follows :

SIZE-GROUP	Per farm	Per hectare of cultivable agricultural land		
		Wages of hired labour	Wage claim for unpaid labour of the operator and his family	Total
	CROWN\$	CROWN\$	CROWN\$	CROWN\$
Up to 20 hectares	1,553.71	21.99	78.90	100.89
From 20 to 30 hectares	1,883.99	18.02	56.95	74.97
From 30 to 50 hectares	2,429.38	25.40	36.01	61.41
Over 50 hectares	3,212.78	19.78	23.63	43.41

The income from agriculture (family capital return, remuneration of the farmer) was larger in the small farms, while the return on capital was small in proportion to the remuneration of the farmer.

SIZE-GROUP	Agricultural income in 1929-30		
	Per farm	Per hectare of cultivable agricultural land	Per 100 crowns of working capital
	CROWNS	CROWNS	CROWNS
Up to 20 hectares	1,106.88	75.77	15.61
From 20 to 30 hectares	1,558.56	62.02	14.33
From 30 to 50 hectares	1,640.88	41.48	9.79
Over 50 hectares	1,755.72	23.72	7.04

The figures given above on the returns from Estonian agriculture prove that, in present conditions, the small farm is more profitable than the large farm and that it provides a larger income per unit of area. The gross return of small farms per hectare of cultivable agricultural land is twice as large as that of the large farms. The gross return in the small farms was 104.28 crowns per hectare; in farms from 20 to 30 hectares, 84.63 crowns per hectare; in farms from 30 to 50 hectares, 70.95 crowns per hectare, and in large farms, 48.83 crowns per hectare. This fact proves that the agrarian reform was justified from the economic point of view.

V. — CONCLUSION.

Speaking generally, the agrarian reform has developed satisfactorily and may be regarded as almost complete, as far as the distribution of land is concerned. It will still be necessary to consolidate the old rented holdings and to divide the lands assigned to the reserve at the moment of the initial distribution, a work which will be completed during the year 1933. To register the farms in the name of the occupiers will require another three or four years. In the newly formed settlement holdings, the buildings have been for the most part constructed, most of the necessary stock has been purchased and the increase of the agricultural production of the holdings is in continual progress.

Thanks to the agrarian reform, Estonian agriculture has been able to acquire new strength by attracting to itself persons endowed with a wider outlook and free from that naturally conservative spirit which opposes every novelty in agriculture, persons who, therefore, assure its economic development. The situation of all those who have obtained land as a result of the agrarian reform has, of course, been improved. To pass from the condition of a worker or a temporary tenant to that of a landowner is in itself of great value from the merely psychological point of view; it increases the joy of labour, awakens a love of country life and of the native land and assures a positive mentality. Although economic independence has brought with it some anxieties, the economic condition of those who have obtained it has certainly improved and their standard of life has

been raised. This is indicated, amongst other signs, by the large dwelling-houses of thousands of new holdings, by the numerous new orchards and by the greater demand for imported colonial produce.

If formerly the development of peasant economy in Estonia already rested, in the main, on various agricultural undertakings and co-operative societies, the agrarian reform could not fail to bring about their more rapid development. The number of agricultural co-operative societies has greatly increased since the agrarian reform. In 1920 there were in country districts 385 agricultural co-operative societies; in 1928 their number was 1,900, that is, it had increased more than fivefold.

The business of the co-operative societies has increased even more than the number.

The agrarian reform offered a favourable opportunity for the establishment of agricultural schools and household management schools, the number of which is at present 33. In addition, there are 10 experiment stations, at which not only are experiments made, but instruction and advice are given to farmers. Seed-selecting stations and live stock improvement stations have also been created; the latter include 112 pig-breeding stations and 399 cattle-breeding stations.

The spread of general education and the organisation of public benevolent institutions have also appreciably benefited by the agrarian reform. By utilising the large mansions on the noble estates which previously served for the summer residence of the great landowners, it has been possible to create a network of elementary schools corresponding to the existing need and also to establish a series of benevolent institutions: orphanages and almshouses, asylums and educational institutions.

The steadily growing interest of the rural population in political questions and the influence which they exert from the point of view of agricultural interests may also be considered as results of the agrarian reform. Of 100 members of the legislative assembly 39 belong to agricultural political associations, whereas at the beginning of the existence of Estonia as an independent State, only eight such persons were members of the constituent assembly.

The great Russian revolution set in motion the elemental forces of the popular masses in the interest of their liberation from the economic, social and national oppression under which they had previously lived.

At that moment, the agrarian reform was the only means of preventing the triumph of bolshevism. Without the agrarian reform it would have been impossible to attain either social harmony or national independence.

The agrarian reform has assured social peace to future generations by creating a numerous and stable class, attached to its homes, and by supplying to a large part of the nation the possibility of devoting its efforts to constructive work.

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MONTHLY BULLETIN

OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

MARKETING OF AGRICULTURAL PRODUCE

World Production and World Trade in Table Grapes (*continued*).

(a) *Post-war Developments.*

In the post-war period, the general aspect of the world trade in table grapes underwent certain changes. This trade had naturally been seriously affected by the exceptional disturbance of international trade in all commodities brought about by the world war and the subsequent catastrophic changes in the economy and currencies of the countries of Central and Eastern Europe. The difficulties of the situation could only gradually be overcome, although speaking generally the regions of production of table grapes had not directly suffered. In 1927 the total volume of the trade was 300,000 quintals more than the average of the years 1930-31. The following years witnessed a steadily increasing expansion of the trade, an expansion which, as already shown, should be considered as the result of the difficulties in the sale of wine. As illustration of the noticeable way in which the volume of trade has been increasing from year to year, the export figures for the years 1927 to 1930 may be given. Expressed in multiples of 100 quintals, the international trade in table grapes was as follows :

1927	13,219	1929	22,215
1928	17,110	1930	19,209

The distribution of the total volume of trade among the exporting countries has perceptibly altered since pre-war times. The export capacity of Algeria and Portugal is evidently on the decline. The proportion exported by France is considerably higher, so that in respect of the volume of this trade France ranks second after Spain. A remarkable characteristic of the post-war development is the appearance on the world market of a large number of new production regions ; in addition to Belgium and the Netherlands, which are the only important suppliers of hothouse grapes, the countries of South-eastern Europe have assumed a new importance. A third group is formed by the overseas regions, in particular the United States of America, Argentina, South Africa and Australia. The Australian exports from 1927 to 1929 were, it is true, still so insignificant as not to appear in the Australian trade statistics. The total volume of the exports for the years 1927 to 1929 was 1,734,800 quintals, of which 1,194,600 quintals were accounted for by the countries of the Western Mediterranean and Portugal, 192,900 quintals by the countries of South-eastern Europe

and the Eastern Mediterranean (Levant) including Russia, and 266,100 quintals only by the overseas countries. International trade in grapes grown under glass included about 81,200 quintals, or about five per cent. of the whole international trade in table grapes. Nearly two thirds of the world trade was in the hands of France, Spain and Italy.

On the side of imports, a change of some considerable interest may be noted in comparison with pre-war years, inasmuch as the United States now imports table grapes only in very reduced quantities. This fact together with the marked increase in the exporting capacity of the producing regions has necessarily resulted in the opening up of new markets, and in larger deliveries to markets usually supplied. Germany is at present even more than before the war the main importing country, the total import being approximately 700,000 quintals or some two-thirds of the volume of the world trade. This increased import is the more astonishing, as there is also a quite extraordinary rise in the importation of tropical or sub-tropical fruits (*Sudfruchten*). England, which comes next on the list of countries importing table grapes, takes 400,000 quintals. Switzerland, Austria and France follow but with much smaller imports. The other countries although numerous account only for relatively small quantities.

The value of the trade in table grapes, taken as a whole, varies, according as calculations are based on the values quoted for the exports or on those indicated for the imports. For the average of the years 1928-1930 the total value of exports comes out at about 78,732,000 RM. while the total value taken on the imports is 109,133,000 RM. Naturally such figures can only be taken as valid within limits, owing to the very summary nature of the methods employed in establishing values for the purposes of trade statistics. None the less, it has been ascertained that the aggregate value of the whole of the world trade in table grapes is about 100 million marks and this gives an approximate idea of the economic world importance of the values invested in this trade.

The international trade in table grapes is a seasonal trade, as appears from the table on page 305 of the monthly averages of sales effected during the years 1929-30.

The exports of the first half of the year are very insignificant. From January up to July inclusive approximately two per cent. of the total yearly volume of the exports come to hand. In August the exports mount rapidly and in September and October reach their highest point. In each of these two months nearly one third of the whole yearly volume was placed on the market. This rapid swelling of the exports usually results in a rapid fall in prices. In November the quantity of grapes exported is nearly the same as in August. In December there is a marked decline and the exports amount to about five per cent. of the total yearly outturn. No monthly returns are available for Bulgaria and Portugal and consequently these countries do not appear in the table. But these two countries, together with France, Greece, Italy and Hungary, export substantial quantities only during the months of August to October. Spain is the only country in the Northern hemisphere, and the only important country, which places a part of its production on the market outside the regular season. The Spanish grower has succeeded in growing, on the one

Monthly Exports of Grapes

(average of years 1929-1930 in 1000 quintals).

*
E.C. 10
Ingl.

COMING FROM	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
Belgium	3	2.3	2	0.5	0.3	1.5	2	3	3.5	2.5	3	5.5	29.1
France	0.2	—	0.2	0.1	—	0.1	—	36	161	138	19	—	354.6
Greece	—	—	—	—	—	—	1	25	35	15	0.3	0.1	76.4
Italy	—	—	—	—	—	—	1	72	163	113	19	0.5	368.5
Netherlands	—	—	—	—	—	0.3	2.5	11	17.5	27.5	10	1.3	70.1
Rumania (1)	—	—	—	—	—	—	—	1	11	23	4	—	39
Spain	0.6	—	—	—	—	—	12.7	54.7	82	124	163	59	496
Hungary (2)	—	—	—	—	—	—	—	34.5	34.5	28	28	—	125
South Africa	—	4	9	8	3	—	—	—	—	—	—	—	24
	3.8	6.3	11.2	8.6	3.3	1.9	19.2	237.2	507.5	471	246.3	66.4	1,582.7

(1) 1930.

(2) Statistics appear every three months; as the exports only begin in August and finish in November, the exports up to 30 September have been distributed over the months of August and September and the exports from October to December over the months of October and November.

hand, very early kinds which come on the market even in July, and, on the other, kinds that are only ready for consignment in November and December, and which in addition can be stored in the importing country for some months still. These grapes, which enter very considerably into the Christmas trade, command good prices even in years when prices of table grapes are very low. When, for example, in the summer of 1931 French and Italian table grapes in perfectly good condition were being offered on the Berlin retail market at 0.20 to 0.30 RM. per kilogramme, Spanish grapes fetched in December of the same year 0.80 up to 1.00 RM. Also grapes of Russian origin, not shown in the table and up to now only available in small quantities, can be stored: these come on to the market at about the same time as the Spanish grapes. Glass-house grapes are shipped all the year round. In consequence of the completely different technique of production which in the Netherlands, in contrast with Belgium, is based largely on the use of cold houses, the principal delivery seasons of Belgian and Dutch grapes are different. The Dutch grapes appear on the market almost exclusively during the months when the large supplies of grapes grown in the open are available. The period over which Spanish grapes are offered is even longer than that for the Dutch product. On the other hand the Belgian grapes are ripe in almost equal quantities over the whole year with the exception of the months of April to June. The highest point of the shipments is in this case shifted to December, since the Christmas sales are of the greatest importance also for the Belgian grapes. The overseas grapes, which up to now do not play any very important part in the international trade, are exported from February to May.

(b) *The Structure of the International Trade.*

In the beginnings of the international trade in table grapes, when transport and handling arrangements were only gradually being adapted to the requirements of the fresh fruit traffic, the market for wares of so perishable a character had to be found in the neighbourhood of the producing district. In the first instance trading sprang up between countries with easy communications. The first consignments of Spanish table grapes from Almeria — in still unimportant quantities — went to Gibraltar and Tangiers, while the first Italian consignments went to Switzerland. In the course of the development and improvement of the transport system and organisation of the fruit trade, and especially under pressure of increasing production, the marketing radius was extended and trading relations emerged even between producing and consuming areas far removed from each other. None the less, in consequence of the particular characteristics of these grapes as commodities, nearby trading remained the fundamental feature of the international trade. The following table makes this tendency clear, and shows how the export from Spain, Italy, Portugal and France, which together with Algiers were the chief suppliers of the world market before the war, was distributed among the receiving countries. A special export statement would be needed for Algiers as practically all the export thence was directed towards France.

Development of the Export of Table Grapes (in 1000 quintals)

EXPORTING COUNTRIES	TOTAL	Quantity directed to:				
		Germany	France	Great Britain	Switzerland	United States
Spain :						
1856	1	—	0.1	0.5	—	—
1865	17	—	—	8	—	—
1874	38	—	—	25	—	4
1884	119	—	7	101	—	2
1894	197	—	10	151	—	22
1904	467	25	51	257	—	108
1913	(1) 552	53	17	277	—	137
1929	(2) 610	150	61	319	—	—
Portugal :						
1886	15	—	—	13	—	—
1895	10	0	0	8	0	0
1905	(3) 64	6	0	48	0	0
1929	(4) 39	10	—	20	—	—
France :						
1894	2	1	—	—	—	—
1904	41	28	—	—	13	0
1929	487	379	—	—	99	—
Italy :						
1874	31	0	1	0	27	0
1886	37	27	5	—	23	—
1894	108	56	1	7	42	0
1904	293	204	2	1	81	—
1913	304	261	—	—	38	—
1928	(5) 229	171	—	—	14	—

(1) Including 11,000 quintals to Brazil. — (2) Including 46,000 quintals to Scandinavia and 20,000 quintals to Brazil. — (3) Including 10,000 quintals to Brazil. — (4) Including 5,000 quintals to Brazil. — (5) Including 40,000 quintals to Austria.

Up to about 1890 the export of grapes from Spain and Portugal was exclusively directed to Great Britain where a demand for fresh fruit had appeared earlier than in other countries and which showed an absorption capacity which increased year by year. Later, after 1890, a considerable proportion of the Spanish exports were diverted and consigned to the United States, where there was at first an important market, especially in the Eastern States, owing to the rapid growth of the town population while the home production of fresh fruit was still only in initial stages. For this same reason, in spite of the development of the growing of table grapes in the United States, increasing quantities were imported up to the war. This market was the more important for the Spanish grapes, as about this time the absorption capacity of the English market had already become constant. Brazil also proved able to absorb, although to

a less extent, Spanish and Portuguese fruit. On the other hand for a long time the Italian and French exports were reserved to Germany and Switzerland, after England the largest importing countries, and England and the United States had no part in the importing of Italian grapes.

Germany became only relatively late an importer of table grapes, and later than Switzerland which in consequence of its nearness to the Italian area of production ranked as the chief importing country for Italian products. Up to 1885 Switzerland took about two thirds of the total Italian export while Germany imported only inconsiderable quantities of table grapes. About 1890 this proportion underwent a change. Germany rapidly assumed the chief place among the countries importing Italian grapes, and although in Switzerland larger quantities could be marketed, these, in consequence of the increasing export activity of Italy, represented only 20 to 30 per cent. of the total export of that country.

About the turn of the century the competition with Italy of the French table grapes export became increasingly each year more noticeable. These grapes went to countries in which previously the predominance of the Italian product had been undisputed. There was no serious difficulty in effecting this invasion of the markets previously mainly supplied from Italy, as the French zones of production are much more favourably situated than the Italian for these markets, while as regards quality the French grapes belong to the same classification group. Hence the French grapes were introduced without difficulty into the wholesale trade and to the public. Since about 1904 accordingly the Italian imports on the Swiss market showed an absolute and marked decline. On the other hand the German market could, in addition to larger imports from Italy, purchase rapidly increasing quantities of French grapes.

The exports became increasingly concentrated on Germany. Owing to its particularly favourable position in respect of the majority of the exporting countries and also to the steady growth in the urban population the absorption capacity seemed to be for the time being unlimited. Almost simultaneously with the establishment of the French table grapes trade, the Spanish grapes, with their many excellent kinds, gained entrance on the German market. The German public, which up to the turn of the century had mainly purchased the cheaper kinds of any fruit coming on the world market, from then onwards began to demand also the finer kinds of table grapes. Before the war Germany was the most important market for which there was the keenest competition. Some part of the fruit declared by the exporting countries as being for England or Germany was re-exported freely from those two countries. No deduction based on the export figures of the producing regions is in full accordance with actual facts, but it may be said that Great Britain exported in 1890 some 8 per cent., in 1900 approximately 15 per cent. and in the pre-war years from about 15 to 17 per cent. of the imports, especially to Canada, the United States, Brazil, and also smaller quantities to Norway. In the same way, some 20 per cent. of the grapes consigned to Germany were re-exported, actually to Russia, Sweden and Denmark. Notwithstanding this re-export, Germany stood, in respect of volume of imports, at the head of the importing countries. On the other hand in respect of

quality the German import continued to be inferior to that of Great Britain, so that in spite of the excess in volume, the value of the German import for 1911-13 was only about 13.5 million RM. while that of Great Britain was 15 million RM.

In spite of the new development of grape producing and exporting regions in the overseas lands, international trade in the post-war years became more than ever a matter of exchange of products within the continent of Europe. The trading from Europe to America which had consisted in the consignments made, through England, to the United States and Canada, was almost suspended. In the United States attention is now being given to the cultivation of table grapes, deliveries are made to Canada and there is even an attempt to extend the trade in United States grapes to Europe. In this way the relations between Europe and America begin to assume a direction contrary to that previously followed. For the present the export from the United States goes exclusively to Great Britain, which also receives grapes from the other overseas countries, South Africa, Argentina and Australia. The lands of Southern Europe look for their natural markets to Austria and Germany which are left even more than before the natural centre for imports, with the result that Germany has of all States the highest per head consumption of imported grapes. The trade relations of the Mediterranean lands to the areas supplied by them have undergone no fundamental modification.

The international trade in table grapes derives the form of organisation from that of the trade in citrus fruits, the same methods being used in the export as had proved useful in the citrus trade. The import trade is also carried by the same firms as handle the citrus fruit. Consignments arriving by steamer (in the case of Germany principally the Spanish) are distributed in the first instance to auction rooms, those imported overland are passed on to the open market by commission firms

III. — SURVEY OF COUNTRIES.

The following survey is confined to those lands which are of greater importance for international trade as producing regions or regions possessing a surplus, or else as regions of consumption. In consequence of the very dissimilar material it has not proved possible to treat different countries in the same detail. From considerations of space items regularly falling below some hundred quintals are omitted, but are naturally included in the totals. The figures for the year 1930 were not available in full at the time of closing the work of collection.

(a) *Exporting Countries.*

I.—The Western Mediterranean Region and Portugal. SPAIN.

In respect of area under cultivation vine growing holds the third place after the cultivation of cereals and olive-growing; the value of the production is only less than that of cereals and leguminous crops. The area under table grapes is estimated at approximately 4 per cent. of the whole area under vine growing.

The main zones of table grape and wine grape growing are found in different parts of the country. Grapes for wine are cultivated on a large scale principally in the provinces of Catalonia and La Mancha in Northern and Central Spain, smaller undertakings of the kind are found in all parts. The large cultivations of table grapes, especially those of which it is intended to export the produce, are found in the Southeast of the peninsula in the province of Almeria and the neighbouring zones of Granada and Murcia. Table grapes are also grown in the district of Madrid, Badajoz, and Malaga, but in smaller quantities and in the first instance for the provisioning of Madrid and other local markets.

In Almeria table grape cultivation is predominant. Almeria is not naturally well endowed; the climate is very hot, the whole country is rocky and much fissured, the surface soil is shallow, the precipitation is low (the average being less than 200 mm.), so that on the whole ten per cent. only of the area comes under agricultural or horticultural cultivation. The vine stocks are planted in the valleys and on the terraced sides of the valleys, wherever there is enough earth for the plant to strike root. The natural water supply has to be frequently supplemented by artificial irrigation. All such schemes are liable to encounter serious difficulties, some idea of these difficulties being gained from the fact that irrigation water in Almeria costs nearly seven and a half times as much as drinking water in Madrid. For the production of a cask of table grapes (about 30 kg.), the supply of water alone entails expenditure of more than 10 RM. The conditions of communications and transport are very primitive in the producing districts, so that the grapes, unless the vineyard happens to be situated near one of the few practicable roads, have to be conveyed on mule or ass back to the collecting centres. In spite of these far from encouraging conditions – which are among the least favourable in Spain – it has actually been possible to form in this province the centre of the table grape production, primarily because under the hot sun of Almeria the quality of the table grapes is so remarkable as to be unsurpassable by that of any other grapes grown in the open. The greatest intensity of production prevails. High yields of from 200 to 250 kg., per vine are by no means unusual. Next to the Almeria grapes, which also enter trade as Ohanez grapes, the Malaga and some types of muscat grapes are cultivated throughout Spain. A specially prized variety of Almeria grapes is the 'Uva legitima'. Almeria grapes are gathered from the beginning of September up to the third week in October.

About three quarters of the table grape production is consumed in Spain itself. In 1924 out of a production of 2,302,240 quintals approximately 510,000 quintals were exported, in 1925 out of 2,316,800 approximately 448,000 quintals. The exports have been maintained at about the same height since 1904-05, and even in the post-war years there was on the whole no tendency to increase.

Spanish Export of Table Grapes in thousand quintals.

Year 1921	312	Year 1926	262
» 1922	406	» 1927	364
» 1923	456	» 1928	464
» 1924	518	» 1929	610
» 1925	493	» 1930	385

The export trade of Spain is in the first instance determined by the absorption capacity of the English markets, which take nearly two thirds of the grapes exported from Spain. At the present time Germany stands second among the importing countries. Before the war the United States took precedence, importing nearly three times as much as the German import of that time. Since 1924 the United States no longer import Spanish grapes, the importation being completely prohibited on the ground that larvae of the Mediterranean fruit fly (*Ceratitis capitata*) had been found in the imported Spanish grapes. Accordingly markets were found instead in Norway, Sweden and Denmark, as well as in Germany.

Export of Table Grapes from Spain in 100 quintals.

	AVERAGE			
	1911-13	1928	1929	1930
Value in pesetas	16,193,000	19,073,000	39,656,000	25,040,000
Total export in 100 quintals. . . .	4,626	4,643	6,101	3,852
Including export to:—				
Denmark	19	103	195	75
Germany	607	1,134	1,563	749
Finland	1	14	25	—
France	130	484	611	682
Great Britain.	2,227	2,494	3,185	1,673
Norway	20	150	126	148
Austria.	33	—	—	—
Sweden.	4	88	131	101
North Africa: International and				
Spanish Zone (1)	12	13	13	—
Argentina	22	—	—	—
Brazil	77	123	196	66
United States.	1,400	1	—	—

(1) Including Morocco.

Spanish grapes are exported in wooden casks which hold from 20 to 30 kg., of grapes. The fruit is packed in cork sawdust, or occasionally in fine wood shavings, a method which prevents bruising and at the same time ensures preservation.

PORTUGAL.

The production of table grapes is relatively small compared with Spain, in spite of the suitable climatic and soil conditions and the favourable position of Portugal in relation to the principal consuming countries. The reason for the smaller production may lie in the system of land tenure. Cultivation of table grapes in the full sense is practised to a limited extent only. On the

other hand the best products are selected from the early maturing and choicer kinds of wine grapes and sold as table grapes. For this purpose the Real Dona Blanca and Formosa grapes are especially employed. It is on a very small proportion of the vineyards only that cultivation of the recognised kinds of table grapes by application of progressive methods is carried on.

Up to the time of the world war the increase in grape exports from Portugal was slow, but since then under pressure of international competition to which the Portuguese industry is subjected in respect of technique both of production and trade, the exports have declined sharply. The competition most severely felt was that of the French table grapes, which have displaced the Portuguese table grapes almost entirely on the market which was the most important for them before the war, *viz.*, the Netherlands. A slight rise may be noted in the exports to Great Britain, while the exports to Germany and Brazil have declined.

Export of Table Grapes from Portugal.

YEAR	In 1000 escudos	In 100 quintals						
		TOTAL	including export to:—					
			Denmark	Germany	Great Britain	Nether- lands	Argen- tina	Brazil
1928.	3,044	331	6	80	178	11	2	50
1929.	4,030	392	6	99	204	21	6	51
1930.	3,379	338	2	96	183	3	1	42

FRANCE.

France is an important producing and exporting country in respect of table grapes, but also imports grapes for table use. Three forms of table grape cultivation may be distinguished, the out-door or field cultivation, the espalier cultivation and that carried on under glass. The first type is of the most importance in France; there is however a considerable production of espalier grapes, while glasshouse cultivation takes a subordinate place only.

The open-air field cultivation is mainly found in the South, with its favourable climatic conditions, in the departments Lot-et-Garonne, Tarn-et-Garonne, and Vaucluse, which account for nearly half of the whole area under cultivation and of the whole production. The departments of Var and Lot are also of importance. In Central France the only extensive cultivation is in the department of Yonne; owing to the cooler climatic conditions however the average yields in Central France are comparatively very low, so that the real importance of this region is less than would appear simply from the proportionate area under table grape cultivation. In Northern France it is not practicable to effect open air cultivation. The best kinds of grapes for field cultivation are found to

be the Chasselas doré, followed by Muscat, Oeillade, Alicante, and Blue Portuguese. These ripen from August to November.

Espalier growing is concentrated in the — more remote — neighbourhood of Paris; and especially in the departments of Seine and Marne. The little town of Thoméry near Fontainebleau is the centre and is celebrated for the exceptional quality of its grapes. Outside the town the grapes are trained on walls erected for the purpose, which taken all together account for a wall surface of more than 120 hectares, and for a total length of several hundred kilometres. The vines are protected against splashing rains by glass windows, which are fixed along the upper edge of the wall in penthouse fashion. This form of intensive espalier cultivation is very similar to production under glass. Even in the streets of the town, in place of the usual grass plots and front gardens, espalier vines are trained and clamber all over the houses. The principal kind grown as espalier vine is the Black Frankenthaler, the kind usually found also in the glasshouses of Belgium and the Netherlands. The grapes are placed in cool chamber storage during the autumn and appear, after the season is over, carefully graded and packed for sale in the better Parisian fruit shops.

The French yields in table grapes have shown remarkable increase in the last 20 years, probably not so much in consequence of extension of the areas under cultivation as of greater intensity in methods, etc.

	Areas under cultivation ha.	Yield in 1000 quintals
1909-13	19,065	647
1927	24,200	1,078
1928	22,160	1,119

Approximately one third of the French production in table grapes is usually sent abroad. At the present time France exports nearly double the quantity of table grapes as in pre-war times. The main countries taking French grapes are Germany and Switzerland. The extraordinary increase in the exports to Switzerland may be noted.

Export of Table Grapes from France.

YEAR	In 1000 francs	In 100 quintals		
		TOTAL	including export to:—	
			Germany	Switzerland
Average 1911-13	5,623	1,158	973	179
1928	105,003	4,054	3,002	1,004
1929	107,719	4,874	3,791	986
1930	54,560	2,213	1,541	619

In consequence of increased home production there was no rise in imports of grapes during post war years before 1930. The chief import is of Algerian grapes, which for the most part arrive on the French market at the time when the season for home grown grapes has not yet begun. Spanish grapes which occupy the second place in imports generally come on the market at the end of the season for French outdoor grapes. The increased importation of 1930 is to be attributed to the especially good grape harvest in Algeria. A proportion, which it is difficult exactly to determine, of the grapes imported are re-exported.

Imports of Table Grapes into France.

YEAR	In 1000 francs	In 100 quintals		
		TOTAL	including export from:—	
			Spain	Algeria
Average 1911-13	3,027	894	108	784
1928	41,278	877	259	608
1929	24,530	896	—	—
1930	45,945	1,961	—	—

ITALY.

The production of grapes may be stated as from 65 to 75 million kg. By far the larger proportion is utilised for making wine. The turn over to table grape growing is still in its initial stage. Up to the present the movement is limited mainly to a tendency to sell choice assorted kinds of wine grapes as table grapes. It is only occasionally that the necessary improvements are made in the vineyards or that table grape kinds are planted specially. Consequently in the earlier Italian statistics the production of wine and table grapes was not kept apart, and it was not till 1929 that the distinction was made. In 1924 it was estimated that approximately 500,000 quintals were sold as table grapes. For 1929 according to the statistics there was a production of 775,000 quintals and for 1930 one of 842,000 quintals. Hence only about one per cent. of the whole production of grapes is used for table purposes. The importation of table grapes is very small.

The progress in table grape production within the last few years is in part due to the efforts of Signor Mussolini. The National Export Institute (*Istituto Nazionale per l'Esportazione*) has made regulations in regard to the standard to be reached by grapes for export and their packing, these regulations being intended to serve as a basis for the subsequent introduction of an Italian national mark for table grapes. The Export Institute recommends the thinning of the grapes when they have attained the size of peas: up to 75 per cent. should be removed. Stress is also laid on the necessity of consigning for export only grapes

that have ripened on the vine, as the sugar content does not increase after gathering. The grapes should not be touched by the hand during the gathering, and the greatest possible care must be taken in handling during transport to the packing sheds. Once there the grapes should be cleaned and graded according to their degree of ripeness and their appearance. Packing should never be done in more than two layers.

The great vineyards for the production of table grapes for export lie in Apulia, Emilia, Tuscany, Sicily, the Abruzzi and the Upper Adige. The kinds which come on the market as table grapes are quite distinct. The most widely diffused is the Chasselas, which is grown in particular in Sicily, Apulia, the Marches, Tuscany, and Emilia. Out of the many other kinds, the Terracina and Pizzutello table grapes may be especially mentioned on account of their quality which is much above the average. In the Upper Adige, and especially in the neighbourhood of Merano, the so-called cure grapes are grown which are regularly supplied to the sanatoria of Merano, but are also consigned to the Central European markets. On new vineyards special kinds of table grapes are being planted, in particular the Panse precoce, a very early variety, and the medium early kinds, Uva Regina, Italia and Zibibbo. Among late kinds, Razaki rosso, and the Ohanez, which come originally from Almeria, deserve special mention. The quality of the Italian grapes varies somewhat with the different technique of production and with the greatly differing climate in the various production areas, and is also affected by the actual weather at any time.

The increased production of table grapes in the last five years has had the effect of stimulating the export of the product as well as the home trade. Up to 1929 the exports of grapes from Italy had not greatly risen in comparison with the pre-war times, but in the year 1930 the export was nearly doubled.

Export of Table Grapes from Italy.

YEAR	In 1000 liras	In 100 quintals						
		TOTAL	including exports to:—					
			Germany	Great Britain	Netherlands	Austria	Switzerland	U. S. S. R.
Average 1911-13.	8,234	2,215	1,924	—	22	—	599	190
1928.	46,406	2,285	1,709	20	—	402	140	—
1929.	47,079	2,864	—	—	—	—	—	—
1930.	68,778	4,532	—	—	—	—	—	—

Up to the present time the Italian export has been almost exclusively directed towards the Central European markets which are reached by railway. So far the volume of overseas consignments is inconsiderable and the overseas trade only at an initial stage. For a long time past Germany has taken the largest proportion of the export, Switzerland coming next, but at a considerable distance. Since the war only about one fourth to one third of the pre-war

quantity can be marketed in Switzerland. This is partially balanced by the increase in the Austrian demand, as the most important area of table grape production (Merano) has been lost to Austria owing to the frontier changes.

The difficulties of the Italian table grape market cannot be wholly removed by an increased export, and in consequence efforts are made to increase home consumption. With this object a great grape festival (*Festa dell'uva*), has since 1930 been celebrated throughout Italy in connection with the vintage, renewing in some sense the ancient local October feasts (*Ottobrate*). This festival gives character to towns of all sizes lying in the vine districts. Under direction of the local and often of the municipal authorities processions are formed in which the vinedressers and many of the Fascist organisations, including the juvenile sections, take part. In addition, during the period 15 August to 15 November booths are erected in the open places of all large towns, and table grapes are on sale, mainly in standard packets of one half and one kilogramme. The retail price must not exceed 130 per cent. of the official wholesale price. By means of this large scale propaganda, very considerable impetus has been given to the marketing of table grapes in Italy. While in 1925 only about 120,000 quintals were consumed in Italy itself, in 1929 the consumption was 489,000 and in 1930, 389,000 quintals, or from 40 to 60 per cent. of the total production. Any further development must depend on the purchasing power of the Italian population.

The cultivation of table grapes is also being pushed by means of propaganda in the Italian colony of Lybia, where owing to the hot climate grapes ripen exceptionally early and can be placed on the market before the season. Good kinds of muscat grapes flourish there, but up to the present there is still very little cultivation attempted.

(to be continued)

Prof. Dr. KURT RITTER and Dr. MARTIN GUTTFELD.

CORRIGENDA. — In *Bulletin* No. 9, September 1932:

On page 295 (table) omit "including" in heading of 3rd and 4th columns.

On page 297 (table) for "importing" read "exporting".

On page 298 (table) for "exporting" read "importing".

ECONOMIC AND SOCIAL CONDITIONS OF THE AGRICULTURAL CLASSES

Rural Housing.

In the March number of 1930 of the *Monthly Bulletin of Agricultural Economics and Sociology* there appeared a first article on the subject of rural housing (1). After some general remarks on the importance of the subject as universally

(1) In that article and also in the booklet: "Les habitations rurales en Europe", which formed the contribution of the Institute to the European Rural Hygiene Conference, the following countries were taken into consideration: Argentina, Austria, Belgium, Brazil, Czechoslovakia, Denmark, England and Wales, Finland, France, Germany, Irish Free State, Italy, Netherlands, New Zealand, Norway, Poland, Rumania, Spain, Sweden, Switzerland, United States of America, Uruguay.

recognised, alike from the economic and social standpoint, some particulars were given in respect of a first group of countries sufficient to give some idea of the work undertaken and of the systems adopted by Governments or by various institutions with the object of hastening the solution of the rural housing problem. It was noted that houses in rural districts are in general insufficient in number and frequently unsuitable, and that much remained to be done if the rural masses, and in particular the farm-workers, are to be ensured dwellings providing even the minimum of comfort and hygiene. The conclusion reached was that the difficulties to be overcome in regard to farm dwelling houses are numerous and of varied character, and that it was important that the Governments should intervene directly, and endeavour to do for rural building what they have done for town building. It should be recognised that valuable efforts have been made by different Governments to remedy the situation.

One sign of the urgency attached to the question is to be found in the resolutions passed in this connection at recent Congresses.

Special mention may be made of the Congress of the International Federation of Workers on the Land (Stockholm, July 1931), where it was pronounced that houses must be built without delay to meet the needs of the farming families and the requirements of hygiene. Also of the Congress of the Agricultural Syndicates of France (Lille, 6-8 November 1931), where a resolution in regard to rural housing was passed in the following terms:—

“ 1. That the Loucheur Law (1) be amended so as to reserve to farmers and agricultural workers the third part of the credits without any possible carrying over to the profit of the other occupations and placing the credits at their disposal with the fewest possible formalities, especially when it is a question of reconditioning old houses ;

“ 2. That the credit banks accept the advances necessary to the immediate application of the Law of 31 July 1929 (2) on the improvement of the rural dwelling, and that the maximum period for the expiry of the loans should be extended to forty years.”

On the other hand, in the United States of America, at the first Presidential Conference on Housing held in Washington from 2 to 5 December 1931,

(1) The Loucheur Law of 13 July 1928 provides for the construction or reconditioning of 260,000 dwellings, including 200,000 cheap dwellings and 60,000 dwellings at a moderate rent, within five years, and one third of the credits voted for the carrying out of this programme must be expressly reserved to the rural districts.

(2) The Law of 31 July 1929 was intended to effect improvement in the housing conditions of agricultural workers. Public administration regulations made in the 18 months following the promulgation of the Law are to determine for each agricultural region the general health conditions which must be satisfied by the housing of the farm workers ; the prescribed measures must be carried out within one year for farms of more than 100 hectares of arable and grass land, within two years for farms of from 50 to 100 hectares, within three years for those of less than 50 hectares ; the agricultural credit banks are empowered to make loans to rural owners, up to 100,000 francs as a maximum, repayable within a period of 25 years, the rate of interest being always lower by 1.50 per cent. at least than the discount rate of the Bank of France.

the Commissions of the Conference laid down certain principles, among them the following: "The advantages and the protection granted to town-dwellers should be extended as rapidly as possible to the rural districts."

A thorough examination was made of the question, more particularly from the hygienic point of view, by the European Conference of Rural Hygiene, which was held at Geneva on 29 June 1931 (1). It was here recognised that there was an urgent need of improvement in the housing conditions in the rural districts, and it was admitted that the miserable and unhygienic conditions of a large proportion of the houses in the country form one of the main causes of certain demographic phenomena, such as the higher rate of mortality in country districts as compared with the cities, the tendency for a movement of the rural population towards the urban centres, etc. The Conference discussed the rural housing problem especially from the technical point of view, and with the object of establishing all the necessary details for attaining sound and healthy buildings and for avoiding a large number of the defects which often constitute the hygienic waste of the old country dwellings including especially (2):

(a) overcrowding; there are not enough suitable houses; the number of bedrooms per house is inadequate, either because the house is too small, or because at the time of preparing the plans the existing space was not properly utilised; apart from the cubic air space necessary, it should be noted that a certain height is required in the rooms for ordinary purposes of convenience;

(b) the inadequacy of the arrangements made for sanitation, for toilet requirements, for the disposal of water used in the household;

(c) too great proximity of the cow sheds, etc., to the dwelling house;

(d) proximity of manure heaps and other sources of harmful emanations or infiltrations;

(e) damp conditions arising from the situation or the nature of the construction of the house;

(f) absence of proper ventilation, lighting or heating;

(g) inadequate protection against mosquitos, flies and dust;

(h) faulty aspect and consequent lack of sunshine.

As valuable means for improvement of rural housing are recommended: education, credit at low rates and other methods for improving the economic position of the agriculturist, voluntary association, legislation with effective enforcement of measures.

The construction of public buildings which are models from the hygienic standpoint is strongly recommended, as well as the erection of model houses as regards a number of selected points. It is considered that in this way a stimulus will be given to individual enterprise.

(1) Prof. VITTORIO PUNTONI: Discussion of Economic and Social Problems of Agriculture at the European Conference of Rural Hygiene. *Monthly Bulletin of Agricultural Economics and Sociology*, No. 11, November 1931. Rome, International Institute of Agriculture.

(2) See the Proceedings of the Geneva Conference.

The Conference was also in agreement in regard to the following ideas and principles:

“The rural population will more readily be brought to take an interest in the healthy dwelling if the preparation of the building plans is preceded by a study of local customs and of economic and social conditions, so that full account may be taken of regional characteristics.

“Loans at a reduced rate, subsidies and fiscal exemptions may be granted by the legislature and constitute effective means of improvement of rural housing. Premiums for the construction of suitable houses give an excellent result in comparison with the amount of money so expended.

“Building codes ought to be in existence showing the minimum requirements relating to situation, aspect, lighting, ventilation, etc. The effectiveness of such codes depends on their strict application accompanied by expert methods of inspection; preparation by means of propaganda is also essential to success.

“The application of the codes should not be entirely left to the local authorities.

“The sanitary authority should have jurisdiction in all questions of a sanitary kind relating to the dwelling house.

“Preparation and distribution of standard plans, meeting general sanitary requirements as well as regional needs, have given good results, and such a method should be encouraged. The houses so designed should be simple in plan and economic in construction.”

In regard to the housing of farm workers in particular, the Conference was of opinion that its improvement presents certain difficulties which cannot be met merely by education or the employment of persuasion. In this respect the farm worker is in a special position of inferiority. Adequate legislative measures properly applied and financial public assistance are also essential for the gradual solution of this problem.

The unsatisfactory housing conditions of this class of workers form an additional stimulus to their migration to the towns where more attention is given to the housing of workers. This tends to lower the standard of life in the country districts and acts as a check on progress in hygiene.

The organisation in the different countries of services of sanitary inspection was recommended, such services to ensure with all the necessary authority that the hygienic conditions of the housing of farm workers are satisfactory and that the regulations issued on the subject are observed. The Conference called attention to the recommendation of the International Labour Conference (1921) on the subject of the housing of farm workers.

Improvement of houses by appropriate methods of repair (reconditioning) has also been taken into consideration, in the belief that when such work is properly directed and supervised it is likely to give excellent results at comparatively low prices.

The opinion was also expressed that the construction of model villages and farm colonies is of special importance in view of healthy rural housing, and that the tendency to place industrial establishments in the rural districts is to be encouraged, since building of this kind on modern lines tends to be followed

by the formation of model villages meeting all sanitary requirements. In the course of preparation of the plans of these villages and farm colonies, the sanitary authorities should have jurisdiction over all questions relating to hygiene or improvement of existing sanitary conditions.

Some of the considerations and principles indicated above had already, as will be shown later, influenced the legislation of certain countries, but their more universal and stricter adoption is greatly to be desired. It is true that there are also collective agreements containing certain clauses regulating rural housing, but as the main object of these agreements is usually that of regulating hours of work and wages, the question of housing is frequently relegated to the second place, and actually no appreciable improvement has so far resulted from attempts at regulation by means of collective agreement. It is consequently felt that the most appropriate method of providing adequately and effectively for housing requirements is a legislation of a detailed and, if possible, special character. It is not essential that this legislation should form part of a Hygiene or Building Code, nor need it form the subject of a distinct text. What is essential is that a sufficient number of points should be fixed as clearly as possible, that the legal provisions should be really practical and above all that they should be enforced (1).

In recent developments of the housing policy of Governments there may be noted a tendency to include the rural problem under the urban. Thus in Italy, the single text of 30 November 1919, No. 2318, included newly-erected rural buildings in the exemption from taxes and additional charges, and extended to them the credit advantages granted to urban building; in France, the legislative activity in favour of popular housing during the last fifty years was general in scope and was intended to benefit alike town and country areas; in the Netherlands, the law of 1901 on insanitary dwellings included instructions in regard to hygiene and made provision for grants in aid equally for urban or rural centres; in Belgium, the law of 11 October 1919 set up the *Société Nationale des Habitations à bon marché* which makes it its business to promote alike both town and country building (2); similarly in Rumania, an agricultural country, where the worker in the industrial centres comes from the country, there is a single type of popular dwellinghouse, and the legislation on the subject has a joint character.

In addition to this legislation applying to both town and country as a consequence of the similar economic elements in the problems, special legislation and special governmental activities are being undertaken for the country districts. Here a further distinction should be made between the regions in a country which are being brought under organic schemes of land settlement, land reclamation and transformation, and the regions for which plans of this kind are not in existence. In the first case perceptible progress may be noted

(1) See article on the Housing of Farm Workers in the *International Labour Review*, Vol. XXV, No. 3, Geneva, March 1932.

(2) FERNAND GOSSERIES, *Directeur général de la Société nationale des habitations à bon marché: L'habitation à bon marché en Belgique. Revue du Travail*, 33rd year, No. 8. Brussels, September, 1932.

in respect of number of buildings and their sanitary condition, a progress which is due to the financial assistance of the State and to its systematic direction and supervision; in the second case, on the contrary, where the provision must be made by private initiative with only very small grants in aid and without any strict public control, a certain slackening and even a definite stoppage is noticeable due to the price crisis which especially affects the farmers.

It is of interest moreover to note the great caution with which schemes having reference to rural building are now examined, in view of the financial difficulties of the present time. Care is taken to ascertain the economic suitability in relation to the size of the farm for which the buildings are intended and the return obtained from it. In the past a disproportion was often noticed between the rural buildings and the extent of the farm and its farming system, frequently entailing far too heavy a burden on the farmer. It is now more fully understood that it is necessary to proportion the expenditure on buildings to the size and type of the farming enterprise. This is confirmed, for instance, by the instruction given by the Union of Swiss Peasants to its Building Departments. The purport of this is that they should not undertake to carry out rural buildings without having examined the applications from the economic and financial standpoint. Persons intending to undertake the construction of buildings must first fill up a schedule distributed in advance by the Union, stating the amount of the expenditure contemplated. This statement of the expense is examined by experts with reference to the value of the farm and the financial situation of the applicant, and the decision as to whether the application may be accepted or not rests with these experts. In cases where further confirmatory enquiries are necessary, special surveys are undertaken by the Valuations Office of the Union. In Italy the Under-Secretary of State for integral land reclamation bases all action on the same principle of economic control.

Technical enquiries, valuable as they are for the solution of questions relating to the improvement of sanitary conditions in rural neighbourhoods, become in fact in the present situation, subordinated to the economic factor. Extensive schemes of improvement, as any far reaching reforms in rural building, require means for their execution which frequently cannot be supplied by private persons, and can only be ensured by the intervention of public authorities, either directed at co-ordination of private funds, or, more effectively still, making loans or even grants of funds without stipulation of repayment.

Some account of the work done by the Governments is given here in the form of notes, which in the case of the countries dealt with in the previous article, will bring up to date the information there given. For countries not previously dealt with a short synopsis of governmental activity will be given.

* * *

ENGLAND AND WALES. — The question has become one of national interest as the housing shortage is, as elsewhere, reacting unfavourably on the prospects of the agricultural industry and is hampering attempts at rural reconstruction.

Under the Addison Scheme (Housing, Town Planning, etc. Act, 1919) the local authorities were empowered to build houses for the working classes and to let them at what were virtually pre-war standard rents. The total number of houses completed in rural districts under this Act was 35,915.

The Housing Act of 1923 (Chamberlain Scheme) provided for the payment of an Exchequer contribution at the rate of £6 annually for 20 years for each house erected according to the conditions of the scheme, and permitted the Local Authority to grant further assistance from the rates. The Exchequer contribution was reduced to £4 for houses completed after 30 September 1927, and was finally withdrawn in respect of houses not completed before 1 October 1929. The total number of houses erected in rural districts under this Act was 118,608.

In 1924 by the Housing (Financial Provisions) Act provision was made for the payment of an Exchequer contribution at the rate of £9 per house annually for forty years, raised to £12 10s. for houses in agricultural parishes. These houses were subject to certain conditions, including: the obligation to reside; prohibition of assignment, subletting, or alienation of the whole or part of the house without the written consent of the Local Authority; a certain limit fixed in regard to the amount of the rent; a preference to be given to large families. The Exchequer subsidy was reduced to £11 in agricultural parishes for houses completed after 30 September 1927, the local rate subsidy being reduced at the same time to £3 15s. It may be noted that Section 34 of the Act of 1930, to be referred to later, provides that the County Council shall contribute £1 per house annually for 40 years towards the expenses of the Rural District Council incurred in the provision of houses erected under the Act of 1924 (as well as under the Act of 1930) for the agricultural population.

The total number of houses completed in rural districts under this Act (1930) up to 30 September 1931 was 47,059.

It is felt that the chief need in the rural, as in the urban, districts at the present time is for the continued construction of houses of the three-bedroomed, non-parlour type, with a total floor area of at least 760 square feet. At the present time the cost of a rural cottage of this type may be reckoned at from £355 to £370.

The Housing Act of 1930 deals with the clearance or improvement of unhealthy areas, the repair or demolition of insanitary houses, the provision of Exchequer assistance towards the cost of rehousing operations, rural housing, etc. County Councils are instructed, as respects the rural districts within their areas, "to have constant regard to the housing conditions of persons of the working classes, and to the extent to which overcrowding exists." The County Councils are further under an obligation to make a contribution of £1 per house annually for 40 years towards the expenses incurred by Rural District Councils in the provision of houses for the agricultural population. In the event of default by a Rural District Council, powers are conferred upon the County Council to hold a public local enquiry, and to transfer to themselves the respon-

sibilities concerned, and the Minister of Health may himself take action if the County Council fail to exercise these powers.

The object of the Housing (Rural Workers) Act, 1926 was to contribute to the improvement of housing conditions for agricultural labourers and other country workers by facilitating the reconditioning of old houses and by the conversion into dwellings of buildings not previously used for that purpose. The Act provides for assistance by grants and by loans to be made available by Local Authorities to owners who are willing to undertake the carrying out of approved works. Typical examples of the kind of works covered by the Act are as follows:—

(a) alteration or repair, *e. g.*, the rebuilding of walls ; pointing or rough-casting or other substantial repairs to walls ; provision of rainwater gutters or pipes ; provision of damp courses ; enlargement of windows.

(b) Enlargement, *e. g.*, the provision of extra accommodation, such as an additional bedroom, a scullery or wash house, food larder and fuel store.

(c) Water supply and drainage; this includes such items as wells, pumps, cesspools, etc.

(d) Sanitary conveniences, *e. g.*, the introduction of more modern conveniences, the provision of a bath, copper or sink, or the provision of gas or electricity.

The amount of the grant, which in practice is usually paid to owners after the completion of the works, is not to exceed either two-thirds of the estimated cost of the works or the sum of £100 in respect of each dwelling. The contribution of the Exchequer towards the expenses incurred by Local Authorities under this Act is made by way of annual payments for 20 years, and is “ an amount equal to one-half of the estimated average annual charges which would be payable by the Local Authority over a period of 20 years in interest and loan redemption on a loan equal to the capital value of the grant made by them in respect of each dwelling.”

The conditions attaching to the grants are somewhat stringent, being as follows:—

(1) The dwelling shall not be occupied except by a person, whether as owner or tenant, whose income is, in the opinion of the Local Authority, such that he would not ordinarily pay a rent in excess of that paid by agricultural workers in the district.

(2) The rent payable by the occupier shall not exceed the “ normal agricultural rent ” plus 3 per cent. of the owner's own expenditure on the works.

(3) The owner of the dwelling shall give a certificate that these conditions are complied with.

(4) No payment by way of fine, premium or otherwise, to be made or received on the transfer of the tenancy.

These conditions remain applicable for 20 years and attach to the dwelling irrespective of ownership.

As regards loans, these must be secured by a mortgage of the dwelling and must not exceed 90 per cent. of the value of the dwelling after the completion of the works.

Up to 31 March 1931, assistance had been given or promised under the Act in respect of 4,391 dwellings by 164 Local Authorities. At the same date the reconditioning of 3,377 dwellings had been completed, and grants amounting to £255,147 had been paid, an average of approximately £76 per house.

It was originally intended that assistance would be available under this Act only in respect of applications received by the Local Authority before 1 October 1931. Its application was however extended by the Housing (Rural Workers) Amendment Act, 1931, for a further period of five years, *viz.* to 30 September 1936.

According to a statement made in the House of Commons on 7 July 1931, about 410,000 new dwellings had been constructed at that date in rural districts in England and Wales since the War. It was also stated that the building programmes submitted to the Ministry of Health on behalf of Rural District Councils under the Housing Act, 1930, failed to show that the real needs of the agricultural workers were likely to be met under the Acts of 1924 and 1930. In view of this situation, the Labour Government introduced a special measure which was passed under the title of the Housing (Rural Authorities) Act on 31 July 1931. This Act enables "special Exchequer contributions" to be made to certain rural housing authorities for the provision of houses in agricultural parishes for agricultural workers and persons of substantially the same economic condition. The Act provided for the appointment of a Central Advisory Committee for England and Wales and a second body for Scotland, to consider applications for the special assistance, submitted by the Rural District Councils concerned (in Scotland, County Councils). In order to qualify for the special assistance, the Rural District Councils were to present their applications to the Committee before 30 November 1931.

The special assistance which the Committee may recommend will take the form of annual grants payable *in addition* to the Exchequer contribution payable in respect of the houses under the Housing (Financial Provisions) Act, 1924. These annual grants will be fixed in amount for a period of 40 years. The Committee will endeavour to secure that the gross rental of any assisted house shall not exceed 4s. 6d. a week.

In a Memorandum (1) dated November 1931, relating to rural housing, the National Housing and Town Planning Council recommends, *inter alia*, the

(1) Memorandum upon the Rural Housing Problem, with special reference to the provisions of the Housing (Financial Provisions) Act, 1924; the Housing Act, 1930; the Housing (Rural Workers) Acts, 1926 and 1931; and the Housing (Rural Authorities) Act, 1931, by John G. MARTIN, Secretary of the National Housing and Town Planning Council. National Housing and Town Planning Council, London, 1931.

general adoption of the practice followed by some rural authorities of allotting a quarter of an acre of land, instead of the customary one-eighth, to each cottage.

The Council also recommends that the sanitary authorities should inspect dwelling houses in their districts and should close, until such time as they are made fit, any houses which are represented by the Medical Officer of Health as unfit for human habitation. In suitable cases influence should be brought to bear on owners with a view to their undertaking, with the benefits of the Acts, a thorough reconditioning of unfit cottages (1).

In AUSTRIA (2) the housing conditions of the rural workers, which generally speaking correspond to the hygienic and social requirements considered necessary, vary in accordance with the region and the locality, following local tradition or usage. On the larger farms the prevailing type for the permanent workers is that of the *Werkswohnung* (3), while on the small farms and on the family farms, especially in the case of married couples, the larger number are owned houses or houses intended for one or two families and belonging to the employer. Labourers who are single men usually live under the same roof as the employer.

According to the constitutional Law of the State, it is the provinces which must make provision for the supply of houses for the rural workers. In 1930, in view of the increasing tendency to migrate to urban centres, the Austrian Government was obliged to make grants in aid, so far as the national budgetary resources allowed, the subsidies being granted under certain conditions for the purpose of adaptation and repair of houses intended for rural workers.

In application of the Federal Law of 15 April 1921 (*Bundesgesetzblatt*, No. 252), employers in respect of agriculture and silviculture who have dependent on them workers and employees who come under the law for sickness and old age insurance, are obliged to contribute to the Federal Fund for housing and land settlement. This contribution is at present fixed at one *Groschen* per person and per week. The Fund is earmarked for the construction of houses reserved for the exclusive use of workers and employees engaged in agricultural or silvicultural work.

The housing conditions of rural day labourers are naturally more primitive than those of the farm hands in regular employment, and do not fully correspond to requirements, although in recent years efforts have been made to introduce improvements in this field also.

(1) On the present position as regards rural housing see also: JOHN G. MARTIN: "Housing Week, Present Opportunities and Needs", *Manchester Guardian*, London, 28 January 1932. — "Some Notes on Housing in England", *Woman's Leader*, Vol. XXIV, No. 5, London, March 1932.

(2) Communication sent to the International Institute of Agriculture by the *Bundesministerium für Land- und Forstwirtschaft*.

(3) See p. 19 of "Les habitations rurales. Contribution à la Conférence d'hygiène rurale (Société des Nations, Genève, 29 juin 1931)". International Institute of Agriculture, Rome, 1931.

The housing of the owners of family farms or of peasant families may be said to be good and even very good in the regions frequented by tourists and in the neighbourhood of the larger towns.

Any failure to reach this standard in other regions or to observe hygienic requirements may be ascribed to the poverty of the population and to the fact that in many localities, the necessary account has not been taken, in the construction of the houses, of the proper internal distribution of rooms.

In view of the agricultural crisis, the majority of the peasant or family farming class is compelled to give up hope of improving housing conditions, since building expenses are too high and the cost of borrowed capital is too great in view of diminished returns.

The rural population of BULGARIA (1), including 80 per cent. of the total population, is distributed over about 700,000 small independent farms, under direct cultivation, with live and dead stock and farm buildings all belonging to the cultivator.

Although Bulgaria is a comparatively small country (about 100,000 square kilometres) there is a great variety in its topography, climate and economic conditions. This variety is reflected in the rural building. There are however two main groups of rural building in Bulgaria: (1) building in the mountain regions; (2) building in the plains.

The houses in the mountain regions are usually two storied. The lower floor is used for stabling, while the upper part is the dwelling and consists of a kitchen in which is the hearth, and one, or two or three rooms, according to the economic conditions of the owner. Access to the upper floor is provided by an outside staircase which leads to a kind of verandah. This verandah is open although roofed, and from it the other rooms are entered to right and left. The lower part is built of stone; the upper part, which nearly always overhangs the walls of the lower floor, is wooden; or more precisely there is a wooden scaffolding with the interstices filled in with bricks, either kiln or sun dried, or sometimes a frame of branches is made filled with rough cast clay. All rural dwellings have a roof which projects over the walls of the upper floor. The roof is made of laths of wood or of tiles; the windows on the lower floor are very small, but those of the upper floor are sufficient in number and admit light to the extent necessary; they are placed in twos or threes and give a pleasing appearance to the white walls.

In the mountain regions the farmyard is small, the dwelling is placed at one end of the yard, and the outhouses are surrounded by a roughly built wall (2).

(1) According to a note sent to the International Institute of Agriculture by the architect, M. TCHARDAFONOFF of Sofia.

(2) DIMITAR G. POPOV: *Selisko-stopanski dvor i postroiki* (*The Farmyard and the Farm Buildings*). Sofia, Petchatnitsa Bojinovi, 1931.

There are of course variations of this fundamental type of the Bulgarian rural house according to the different climatic, topographical and economic conditions, and also according to the standing of the owner.

The greater number of the villages in the mountain regions are in step form; the pathways are narrow and tortuous, sometimes paved, sometimes not. Especially in spring and autumn these villages are picturesque with their houses whitewashed within and outside, with their silvery grey wooden roofs and their verandahs adorned with flowers, climbing plants, and espalier vines.

Dwelling houses in the plain regions usually cover a comparatively large area, and for the most part consist of a single floor. They are raised by two or three steps above the level of the ground, and outside along the whole length of the house or only on the south or west side there runs an open, roofed in, verandah. During the summer this verandah is used as a dining room and as a bedroom. At one end is the kitchen with the hearth and a kind of oven for baking bread; to the right and left of the kitchen are the other rooms.

The stabling is found either behind the house, or to the side.

Farm or household stores are kept in storeplaces arranged on the sides of the house away from the verandah, when the construction of underground cellars is not possible owing to the presence of subterranean water. The whole is under the common roof of the house which in itself is of pleasing and harmonious appearance.

The roof is somewhat sloping and projects considerably over the wall. Owing to the slightness of the slope the space under the roof (the *tavan*) is as a rule, both in the houses of the mountain regions and in those of the plains, not utilisable. It is rare for the roof in Bulgaria to have less than a 30° inclination. If it is desired to have room under the roof for a barn, the walls on the four sides are raised and the house is covered with a flat roof.

In the plains, there is naturally a much greater variety in the type of dwelling house, in accordance with climatic and other conditions. It is sometimes two-storied as in the mountains, but in this case the stabling forms a separate building instead of being found on the lower part. For some time past there has been a tendency in these plain regions to place the stabling at a certain distance from the house.

The building materials for houses and other buildings consist of brick, kiln- or sundried, for the walls, and stone for the foundations. Roofs are tiled, thatched roofs having almost disappeared. The walls are rough cast in clay both inside and out and whitewashed. The floor of the dwelling is beaten clay. The window space is sufficient for the admission of light into the dwelling.

Generally speaking, the Bulgarians have an innate sense of the hygiene of the dwelling and do all possible to make their homes correspond to good conditions of hygiene.

In regard to the farmyard and the buildings other than the dwellings, it is only on the more well-to-do farms that one finds a really satisfactory arrangement and a sufficiency of building for all purposes. In a small farmyard the farm buildings are placed in line along one side of the house or at most form a rectangle. At first sight the buildings seem to have no connection

with each other, but on more careful inspection they are seen to be arranged with a view to easy communication and control and to protection against weather conditions.

The Bulgarian peasant keeps his cereals in special barns ("Hambari") which are built of planks, or else he places his grain in covered baskets. Maize before husking is placed in small huts built of laths and wicker. All such storeplaces are situated at about one metre above the level of the soil, and in the best ventilated part of the farmyard, but close enough to the house to allow of supervision by the owner. Pigs are kept in very primitive sties made of rough hewn wood, while the poultry take shelter in the trees for the whole year round.

As a result however of the propaganda work done by experts and by various organisations for the encouragement and progress of agriculture, noticeable improvement has been effected and at the present day the Bulgarian peasant recognises that if he is to make the profits hoped for on stock farming and poultry raising, he must arrange for hygienic stabling and shelter.

Encouragement of rural building is due to the Ministry of Public Works and the Ministry of Agriculture. The Ministry of Public Works was active in introducing a Law under which all owners who have agreed to construct rural building to the types and the plans established by the Ministry will enjoy for a period of ten years exemption from the tax on building property. A special technical Section has been attached to this Ministry, with the function of making the necessary proposals for village planning.

The Ministry of Agriculture includes a building office. In addition to its specific functions which include provision for the buildings on State farms and for those of the institutions under the control of the Ministry, this Office also publishes popular handbooks which contain plans and instructions in reference to rural buildings. These are distributed free. The Office also arranges for the publication of articles on these questions in several agricultural reviews.

Courses on rural housing are followed by students of the Faculty of Agronomy of the University of Sofia, who will be the future rural engineers, and by students of the technical school, who will be the assistants of architects and engineers.

The Bulgarian peasant is deeply attached to his home. He erects new buildings whenever he can; he repairs and improves the existing buildings and throughout preserves his sense of economy, hygiene and comfort. He has intelligence and good sense, and is moreover always ready to accept advice and even criticism from experts, and to add to the knowledge he already possesses.

(to be continued)

G. COSTANZO.

BIBLIOGRAPHY ON ECONOMIC AND SOCIAL QUESTIONS

TÖNNIES, Prof. Dr. Ferdinand: Einführung in die Soziologie. Stuttgart, 1931. Verlag Ferdinand Enke, 327 pages.

[To those at all familiar with sociological enquiry and with the problems thus raised, the importance of the contribution made by Prof. Tönnies to the subject will be already well known. It is generally recognised that a far reaching influence has been exercised for nearly half a century on studies of this kind by the distinguished sociologist who is President of the German Society of Sociology (*Deutsche Gesellschaft für Soziologie*).

Prof. Tönnies adopts a method analogous to the research methods of the natural sciences. In biology, for example, if complete understanding of the organism and of the physical and chemical laws which regulate its working is to be reached, the analysis cannot stop short of the living cell, and in the same way the author endeavours to resolve the social organism into its simplest elements, sociological atoms, so to speak, so as to arrive at a fuller comprehension. In this way he formulates fundamental ideas on the forms of association which are, as it were, the nuclei of all collective entities, alike the community (*Gemeinschaft*) and the society (*Gesellschaft*). These ideas found their first expression in the book of his youth: "Gemeinschaft und Gesellschaft", published in 1887 and now in its seventh edition. The plan of the book now under review was submitted originally by the writer to the Fifth International Congress of Philosophy, held at Naples in 1924. This work is in part a more complete development of some points in his general theory and in part an attempt to put his system to the test in relation to historical reality.

According to the author, at the base of every community, in the widest sense of the word, there is found the family or an association of persons linked together by consanguinity, whereas the society is a grouping of persons linked together by a social contract, as is the case for example in a joint stock company. The formation of all parties, of social classes, of the State, of the Nation, as also the constitution of trusts, syndicates, etc., may be reduced ultimately to these two prototypes of social organisation, being simply derivatives of these at different stages of their sociological development. Historically the community precedes the society in the cultural life of any collective entity. The former may be transformed into the latter, but the inverse of this sociological process never occurs.

A well determined sociological content corresponds to this difference in sociological forms, *viz.* the diverse modes of ownership. To the community there naturally belongs the collective ownership of the land, the primitive agrarian communism. This mode of joint holding of land, the origin of which goes back to the dawn of history, survives up to recent times in the German rural community (*Feldgemeinschaft*), in the family community of property found among the Southern Slavs (*Zadruga*), in the agrarian constitution of the Russian *Mir*, etc. As regards the *Mir* in particular, Prof. Tönnies maintains that, far from being of recent origin, as is affirmed among other writers by von Haxthausen, the first to make a study of this Russian form of land tenure, it really goes back to the earliest times, and is an agrarian collective form based on family elements. In making this pronouncement he relies rather on his own deductive method than on an inductive analysis of economic facts.

Private property in general and especially private property in land develops later from these forms of joint ownership, in consequence of the predominance, under a capitalist system, of the society over the community. This tendency has been very noticeable in the agrarian legislation of the different European countries during the last two centuries, including the post war measures of agrarian reform.

This conception of the social structure and this excessive narrowing down of the sociological bases has even in Germany found critics among scholars who, if not actually attacking the principle, are opposed at any rate to the somewhat dogmatic method of presentation.

The dynamic forces at work in all social progress are not, in Prof. Tönnies' opinion, to be found in the abstract idea which Hegel postulates as manifesting itself in history and determining its course, nor in the human spirit of Comte's positivism, nor in the gradual improvement of the moral sentiments, as held, for example, by Tolstoi. All these undoubtedly play a great part in the history of nations, but the most decisive factor, that which imprints itself on all social life, consists in the economic conditions of a particular epoch. Prof. Tönnies accordingly accepts Marx's postulate of historical materialism, although he does not omit to recognise that all the factors in historical progress, economic, spiritual and political, etc., are blended together and are interdependent. All through history it is always the class economically the strongest which strives to endow its own claims and aspirations with the form of law and justice. This is especially the case in agrarian policy. In the England of the XVIth century, for example, it will be remembered that the all powerful landed aristocracy moulded the agrarian constitution in such a way, by the so-called "clearing of estates", or incorporation of the peasant or family holdings into their own lands, or by the enclosure of commons, that the right of the landlords kept on growing stronger at the expense of the rights of the peasants who saw their lands undergoing repeated and constant shrinkage. The same phenomenon may be observed in France throughout mediaeval times and up to the Revolution, and in Germany up to the introduction of the new agrarian constitution at the beginning of the XIXth century.

An approximate idea only is conveyed in this note of the importance of this work. It is throughout of great interest, but requires on the part of the reader a fairly thorough acquaintance with sociological theory. The book will not be found to contain, as might be expected from the title, merely "prolegomena" to sociology, but rather provides a commentary on sociological science, or the theory [of pure sociology, at least as understood by the author].

HORACE PLUNKETT FOUNDATION. *Agricultural Co-operation in Ireland: A. Survey.* London, George Routledge and Soss, Ltd., 1931, XIV+424 pp.

[This is a companion volume to the *Survey of Agricultural Co-operation in England* previously published by the Horace Plunkett Foundation. Beginning with an historical sketch of agricultural co-operation in Ireland and a special chapter on the legal position of the movement, it proceeds to a detailed survey, containing accounts of the principal co-operative societies in each county in the Irish Free State and in Northern Ireland. Statistical tables, relating to the Year 1929, are then given, and there follow chapters discussing the organisation and working of co-operative creameries, of agricultural societies, of credit societies, and of miscellaneous marketing societies. The final chapter is devoted to an account of the central propagandist and advisory body, the Irish Agricultural Organisation Society, and of the similar body that was formed in Northern Ireland after the political separation of Northern Ireland from the Irish Free State.

The account given of the movement is all the more instructive because it is perfectly frank. The results are not exaggerated; the failures and weaknesses of the movement and the mistakes committed are not concealed.

The impression which is left on the mind of the reader is that the results of so many years of devoted effort on the part of the founder of the movement, Sir Horace Plunkett, and of his associates are somewhat disappointing. Only one form of agricultural co-operation — co-operative butter-making — has been strikingly successful in Ireland and even in this field centralised marketing has not yet been successfully organised. The co-operative supply of agricultural requisites has only had a limited success, in spite of the existence of a moderately successful central trading body. Co-operative bacon-curing is represented by three successful societies, but the co-operative marketing of produce other than butter and bacon, though frequently attempted, has had little success. Co-operative credit, in spite of much effort to promote it, remains almost negligible. Perhaps the lesson to be drawn from the history of the movement is the necessity of concentrating on those forms of co-operation which prove to be successful. Co-operative dairying was immediately successful, and the co-operative supply of requisites has been most successful where carried on by dairy societies side by side with the manufacture of butter. The extension of co-operative supply to districts where there was no scope for a co-operative creamery would probably have followed naturally and much of the effort spent in earlier years in the formation of special agricultural societies, many of which have since disappeared, might have been spared. The failure of co-operative credit to develop is not easy to explain, as conditions in some parts of Ireland do not seem to be fundamentally different from conditions in countries where it has been a remarkable success, but the fact remains that the efforts to promote it in Ireland have been largely thrown away.

The volume is preceded by a "foreword" written by Sir Horace Plunkett, whose recent death gives it almost the character of an economic testament. Sir Horace does, indeed, urge the necessity for a great endeavour to put an end to the present agricultural crisis and suggests a policy, applicable rather to England than to Ireland, as a beginning of that endeavour. "The most promising help to the Nation," he writes, "would be the settlement, upon land outside the wheat-growing area, not of isolated small-holders, but of groups of them carefully selected with a view to their achieving economic independence as rapidly as possible." The policy may or may not be sound, but the arguments by which Sir Horace Plunkett supports it show that it is inspired by that spirit of economic nationalism which is itself so largely responsible for the world agricultural crisis].

CRAMOIS ANDRÉ: Les Associations agricoles dans les Colonies Françaises. Paris, Fédération Nationale de la Mutualité et de la Coopération agricole. 29 Boulevard St. Germain, Paris VI.

[In this pamphlet is presented a clear and complete general survey of the present state of development of co-operation in the French Colonies. From the fact that the author is Assistant Inspector general of the *Caisse Nationale de Crédit Agricole*, and Technical Delegate of the *Fédération Nationale de la Mutualité et de la Coopération Agricole* it may be regarded as authoritative.

After a rapid summary of the legal position and of the different forms assumed by co-operation in France, the writer proceeds directly to the present conditions of co-operation in the colonies. For convenience he has divided the colonies into four large groups taking as basis the differences of administrative organisation.

The North African group includes colonies lying very near to France and subject to the same climatic conditions, and the European settlers represent a large proportion of the population, so that it is not surprising that co-operation has developed as a branch of the organisation in the mother country. Co-operative agricultural credit, producers' co-operation, mutual insurance are all well developed, and in Algeria, as in Tunis and Morocco, these different forms of co-operation are supported equally by the indigenous population as by the European settlers.

The group of early colonies known sometimes as the "old colonies" includes mainly a certain number of islands, the remains of the French colonial empire of the XVIIIth century. To some readers it may be a matter of surprise to learn that even before the formation of agricultural association in France these colonies had, with the assistance of the local banks of issue, organised a type of agricultural credit, more especially in the West Indies in 1848 at the time when the abolition of slavery dealt a death blow to the plantation system.

The agricultural syndicates, the producers' co-operative societies, the co-operative agricultural credit societies, are much in favour among the small cultivators who form the majority of the existing population at the West Indies and Reunion. In French Guiana there is only a bank of agricultural credit; in New Caledonia four syndicates and in the New Hebrides a producers' co-operative society. The French Settlements in Oceania have a Credit Bank and several producers' co-operative societies of different kinds.

The group of colonies which are subject to the administration of Governors General is the most important from the economic standpoint, as they are areas of development by the enterprise of a white population which is very small in comparison with the native. In the group of African colonies the natives are still too little adapted to European civilisation for co-operation to be developed otherwise than on a small scale and under the most primitive forms, such as stock farming co-operative societies. The European settlers on the other hand have formed in these regions associations for the protection of their interests.

For Indo-China the situation is altogether different. The white settlers are few in numbers and have large capital resources, but the great mass of the population is made up of small native farmers whose improvidence has frequently made it necessary for them to contract debts, often with foreign creditors (Chinese or Hindoo), at excessive rates of interest up to 200 per cent.

The necessity establishing for co-operative agricultural credit among the indigenous population was becoming strongly felt and the idea has gained universal acceptance. In 1930 loans were made to the natives through co-operative agricultural credit to the amount of 15,108,778 piastres, or more than 151 million francs. The number of members has risen to 14,398. A Bank of Agricultural Credit lent to Europeans in 1930 a total of 239,080 piastres, the membership being only 115.

Among the mandated countries, Cameroon is the only one with a few native producers' co-operative societies and one co-operative agricultural credit association].

E. G. NOURSE and KNAPP: *The Co-operative Marketing of Livestock*. Washington D. C. The Brookings Institution, 1931.

[In this volume which deals with a subject of great importance at the present time, there will be found not only a general view of all the operations involved in the distribution of livestock by co-operative methods, but also a detailed study of each of the phases of this distribution. The relative importance of different types of

co-operative organisation, and the immense part played by these societies in the economic life of a great nation in which livestock products hold a premier place in agricultural economy are especially emphasised.

The book is divided into three parts dealing with different aspects of the question.

Part I is devoted to an examination of the livestock shipping associations from the time of their first formation, more than a century ago during the period of pioneer colonisation in Ohio and other regions, up to recent years when after the war this movement was characterised by extraordinary success and rapid expansion.

A careful study is made of the causes which led to the formation of these associations, *vis*; the dissatisfaction with the services of local livestock buyers, and the necessity under which the small growers found themselves of grouping for the purpose of shipping their animals to the more distant markets.

Among the stimulating factors, the authors give the full credit to the large farmers' societies, such as the Society of Equity and the Farmers' Union, both of which had a very active development throughout the Middle West over a period of twenty years.

In Part II the methods followed by the different local co-operative societies that were formed in response to these requirements are described and criticised and a full account is given of the changes that came about in the system of assembling stock or shipping and sale of stock on terminal markets. The increasing complexity of the services to be rendered by the local shipping association resulted in these bodies also undertaking the sale on these important markets. Thus as time went on, there was the phenomenon of the entrance of the small growers combined in co-operative societies on the market of the great meat-packing centres. Subsequently the national producers' associations adopted the same method, and took delivery on the market of consignments made alike by the local co-operative societies, and by isolated growers, selling on commission for the account of both types of shippers. Side by side with this system, and especially since the extensive pooling of private meat packing enterprises, another method of purchasing live stock has developed which may be described as the direct method and consists in buying direct from the stable or taking the animals direct from the producer, sending them straight to the packers without passing them through the market. The co-operative societies adapted themselves also to this method and took steps to facilitate relations between the ranchers of the West, the producers of store cattle and the fatteners of the regions of intensive cultivation in the Middle West. These latter buy the store cattle and fatten them before reselling on the market of the other areas. In this way there came into being a new form of co-operative purchase and sale, the National Order Buying Company, which renders great services to these two classes of farmers by facilitating "contacts" and making unnecessary costly and troublesome journeys.

Auction sales of hogs and of other live stock, and the special types of sales effected in the West and South are also discussed.

Part III is devoted first to an appraisal of the results accomplished by co-operative live stock marketing organisations, and of the improvements introduced thereby from the standpoint of diminution of costs of distribution, and convenience of central marketing organisation for the producer. The intermediary services rendered by these commission co-operative agencies also receive recognition. By such means thoroughly trustworthy service is ensured, and in addition social advantages result from placing in the hands of a representative of the producers a mass of products with the effect that prices are influenced, a system known as collective bargaining.

The Agricultural Marketing Act creating the Federal Farm Board was passed on 15 June 1929, and in this way, as complementary to these channels of distribution which were so largely co-operative in form and methods of working, a central organisation was constituted which although displaying no anxiety to control them directly had nevertheless adequate financial means to exercise a powerful influence on their policy.

The action of the Federal Farm Board in this respect was in fact of a co-ordinating character with the object of obtaining if not a complete stabilisation of prices at least some effective limitation of excessive speculation. The interest of this book is greatly enhanced by the fact that its publication is of so recent a date as to enable the authors to make some examination and to give an opinion on the activity of the Federal Farm Board.

The appendices give information, derived directly from documentary sources, on: hog price differentials between principal terminal markets, year to year and seasonal hog price differentials, week to week differentials, and day to day differentials between the markets of Chicago, Kansas City, Omaha, Saint-Louis and Saint Paul. The appendices also present the behaviour of prices on interior markets, classification as to weight and quality as followed by the different large packing companies, the relation between direct purchases and hog prices. In conclusion examples are given of the terms of constitution of various important co-operative associations.

It may be added that in the preparation of this valuable work, the authors have maintained close touch with persons actively participating in or intimately informed concerning co-operative livestock marketing agencies in the United States of America].

BOYAZOGLU, Dr. Alexandre J.: *Agricultural Credit*, London, 1932, P. S. King and Son, Ltd. pp. XXXIV-267.

[After some observations of a general character, intended to give the reader some idea of the essentials of the subject, the author proceeds to a further determination of the objects of agricultural credit, the characteristics peculiar to this form of credit and the place it occupies in the general credit structure. Next follows a study of the capital resources in rural economy, with an examination of their nature and grouping. A full account is given of the development of the capital requirements of agriculture, requirements which have grown very rapidly in the past and are at present very large. Dr. BOYAZOGLU proceeds to give a general description of the organisation of agricultural credit and the forms under which it is found, beginning with a highly condensed survey of banks as a whole, in which he emphasises the points relating to agricultural credit in respect of each type of bank. Taking certain criteria as bases, the author distinguishes several forms of credit; but he remarks at the same time that there are certain combinations of these forms which are more usually found in practice, and that the most satisfactory groupings are those which are based on guarantees. A separate chapter is devoted to the subject of guarantees of agricultural credit.

The last chapter is devoted to international agricultural credit. The author emphasises the necessity of a scientific distribution of capital resources within international rural economy, stating that in his opinion the only solution capable of effecting such distribution is the foundation of a central international institution of agricultural credit.

The author has taken care to utilise the best sources of documentation and in particular as may be seen from the bibliographical list appended to the volume, he has made frequent use of the publications of the International Institute of Agriculture].

MISSEL, Dr. Karl: Währungs politik und Industriepolitik, Agrarpolitik und Sozialpolitik im Italien der Nachkriegszeit. Verlag Franz Pietzker. Tübingen, 1931.

[The object of this publication is to examine the social and economic policy of the Fascist regime from its beginning up to 1930.

The work falls into three parts, and Part I is a general discussion of the development of Italian economic life and in particular of the monetary and industrial policy of the Fascist Government. The questions treated in this first part are: the pre-war and war economy, the post war crisis, the opening of the Fascist regime and the encouragement given to economic activity, the fall of the lira and the period of prosperity followed by the check to prosperity, the revalorisation of the lira and the deflationary crisis, the legal stabilisation of the lira and the renewed encouragement given to economic activity, deflation once more and the world crisis; a note on the course taken by the currency.

Part II deals with the agrarian policy of the Fascist Government. After briefly summarising the development of agriculture up to 1925, the writer deals with the intensification of production, the Wheat Campaign, integral land improvement, the policy relating to agricultural labour, credit assigned to agriculture, adaptation of production to demand, tariff policy in its relations with prices, the agricultural crisis, agriculture in its relation to the trade balance, forestry policy and economy.

In Part III Dr. Missel examines the social policy of the Fascist Government and in particular the syndical and corporative organisation, the policy as regards wages, the labour legislation, social insurances, policy in respect of unemployment, etc. In conclusion some final considerations are set out as regards the achievements of the Fascist regime in the different spheres dealt with by the writer, as well as in regard to future prospects. As remarked in the preface an acquaintance on the part of the reader with the leading ideas and also with the history of Fascism is presumed].

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AGRICULTURAL ECONOMICS AND SOCIOLOGY

MARKETING OF AGRICULTURAL PRODUCE

World Production and World Trade in Table Grapes (*Continued*).

ALGERIA.

Cultivation of wine grapes has been the work of monks and colonists. About the middle of last century, after vine-growing had almost completely disappeared under the long regime of Islam, vineyards were again laid out on the French model especially in the provinces of Oran and Algiers. The indigenous Mahometan population has kept aloof for the most part from vine growing, in spite of special measures of encouragement on the part of the Government. Table grape production is of more recent date and was taken up only towards the end of the century mainly in the department of Algiers and the districts near the ports. The varieties planted are those most commonly employed in France, the Chasselas, which has proved particularly prolific in the warmer climate of Algeria, yielding 50 quintals per hectare. The sirocco winds constitute a special danger for Algerian vine growing, and often destroy a large proportion of the crop.

The grapes ripen even in the deeper valleys early in July and are despatched with the early fruit and vegetables almost exclusively to markets of Marseilles, Paris and other large French towns. Smaller quantities are sent longer distances to Germany; before the war Germany took about 9 per cent. of the whole export from Algeria. As the fruit comes on the market before the actual grape season and commands a high price, table grape cultivation expanded rapidly in pre-war years. Unfortunately production statistics are not available. In the years 1901-03 the export was 37,500, in 1909-13 it was 150,000 quintals. After the war the exports declined very considerably and it is only in recent years (1927-29) that they have attained about one third of the pre-war position. In 1928 the export was 56,699 quintals, in 1929 it was 64,755 quintals, and in 1930, 89,255 quintals.

This retrograde movement is on the one hand to be attributed to damage caused by phylloxera which was introduced into Algeria in 1907. On the other hand the absorption capacity of the French market has dwindled owing to the expansion of the home production of grapes. So far new markets have not been found for the Algerian product and consequently a great part of the production must necessarily be consumed within the country. The prospects of-

ferred by the home market are not unfavourable inasmuch as the demand for fresh fruit is constantly increasing with the progressive Europeanisation of the country and the tourist traffic.

There is no import of table grapes.

2. — North West Europe.

NETHERLANDS.

The earliest cultivation of table grapes in the Netherlands is said to date back to the 17th century. In the South of the Province of South Holland, the part known as "Westland", outdoor cultivation was attempted, and, thanks to the mild climate, the ripening of table grapes proved practicable. In the course of the further development of the country table grape cultivation has twice changed its form. Since the middle of last century the open air production of table grapes, the yields from which were inadequate as well as uncertain, was improved and grapes were grown after the French (Thoméry) model on walls as espalier vines. This change of method resulted in a much larger production and in improvement in quality. The ripening process was hastened by the more intensive irradiation, so that the espalier grapes could be placed upon the market earlier than the ordinary grapes. By 1930 the espalier cultivation had reached its highest point. In Westland, which was always and still is the centre of grape cultivation, the wall area covered with espalier vines was at that time nearly 400,000 square metres. The quantities gathered however were not large enough to give rise to an export of table grapes. The foundations of an export trade were laid by the further change over to growing under glass, as in that way the cultivation became even less dependent on weather conditions and an earlier delivery on the market was ensured. According to the first official statistics of market gardening published in 1904, the area covered by the glass houses in which vines were grown was 259,722 square metres, in 1912 the area had increased to 673,889, and in 1925 to approximately 1,150,000 square metres. Only about 20 per cent. of the glasshouses are equipped with heating apparatus; the remainder are the so-called cold houses. At the present time the Netherlands stand first among the countries in regard to glasshouse production of table grapes.

The typical market organisation built up for the trade in vegetables was adopted from the first in the trade in grapes. After the gathering when for the time being the markets are glutted grapes can be kept in cool storage till better prices are once more offered. The most important depot for consignment is Naaldwijk. The earliest kind is the Gros Colman grown in warm houses and placed on the market at the beginning of July. In the cold houses the principal kind grown is the black Frankenthal, which ripens in August, and the black Alicante, ripening later still, and suitable also for placing in cool storage, and exporting in February. Other varieties, such as the Gros Maroc, are of less importance.

A very large proportion of grape production is sent abroad but as statistics of production are not available it is difficult to determine the exact proportion.

The course of the export trade was as follows :

1905	144 quintals	1927	41,160 quintals
1910	1,660 »	1928	53,723 »
1914	11,660 »	1929	65,696 »
1924	23,373 »	1930	74,100 »

Dutch grapes enter trade as luxury fruit, not only because they reach the market in part out of season, but also on account of their remarkably uniform quality, their excellent grading, packing and setting out. The principal customers are Great Britain and Germany, which take over 90 per cent. of the whole exports. Sweden and Denmark import only small quantities although to an increasing extent. In the last few years grapes have also been despatched to the Netherlands Indies, although at first only experimentally. Owing to the success of this undertaking, the table grape trade and the steamship companies concerned in the despatch to the East Indies are preparing for a larger export in the near future.

Export of Table Grapes from the Netherlands.

YEAR	In 1000 florins	In 100 quintals				
		TOTAL	Including exports to:—			
			Denmark	Germany	Great Britain	Sweden
Average 1911-13	135	30	—	15	12	—
1928	3,220	537	10	250	248	22
1929	3,536	657	14	254	354	28
1930	3,800	741	21	315	370	25

The Netherlands import small quantities of table grapes only, mainly from Portugal. In contrast to the Dutch grapes the imported fruit is of inferior quality.

Import of Table Grapes to the Netherlands.

YEAR	In 1000 florins	In 100 quintals		
		TOTAL	Including import from	
			Belgium	Portugal
Average 1911-13	105	31	13	5
1928	112	31	4	15
1929	110	35	3	26
1930	65	13	2	6

BELGIUM.

The comparatively unimportant open air cultivation of the vine in Maastal supplies wine grapes only. Table grapes are almost exclusively grown under glass. The development of this branch of production dates back to the middle of last century. The first glasshouses were built on the English model at Hoeylaert, a small place near Brussels, which still remains the real centre of the cultivation of the vine. The example was soon followed by other neighbouring places, among them in particular Overysche and La Hulpe. The grapes are sent to the Brussels fruit market and enter trade as Brussels grapes; the well known glasshouse varieties are grown, Frankenthaler, Gros Colman, Black Alicante and others.

In contrast to the Netherlands, grapes in Belgium, with few exceptions, can be grown only in hot houses. This makes it possible to place them on sale in those months in which the out door grapes and also the Dutch glasshouse fruit have already disappeared from the market. Before the overseas grapes were brought to Europe, the Belgian owners of hothouses had the monopoly in the months falling outside the proper table grape season. This circumstance favoured the extension of vine cultivation in Belgium, although there is only a limited market for a fruit that is so definitely a luxury product. A large scale extension of the cultivation under glass has been effected, particularly in the post war years. In 1915 there were about 15,000 vine houses, while at the present time there are nearly 25,000 with a yearly production amounting to from 40,000 to 50,000 quintals.

With the extension of production an increasing proportion of the fruit has been exported. About 1890 only 1000 quintals were exported, but the export had risen in 1911-13 to 7700 quintals, and in 1929 to 31,000 quintals. In 1930 a slight decline to 27,900 quintals is to be noted. About 85 per cent. of the exports go to Great Britain while Germany stands next with about 5 per cent. In contrast to England the exports to Germany have not risen as compared with the pre-war years.

Export of Table Grapes from Belgium.

YEAR	In 1000 francs	In 100 quintals				
		TOTAL	including export to:—			
			Germany	Great Britain	Nether- lands	United States
1911-13	2,170	77	14	51	5	5
1928	50,165	290	19	248	5	8
1929	60,384	310	15	266	—	—
1930	49,420	279	13	230	—	—

As happens with the Netherlands, Belgium also imports to meet the internal demand considerable quantities of cheap French table grapes.

Import of Table Grapes into Belgium.

YEAR	In 1000 francs	In 100 quintals	
		TOTAL	Including import from— France
1911-13	69	5	4
1928	2,307	49	48
1929	3,450	82	81
1930	2,632	56	53

3. — South East Europe and Russia.

HUNGARY.

Before the war the production was almost exclusively of wine grapes. With good markets at home and abroad the industry was in a prosperous condition. By the Treaty of Trianon Hungary lost nearly two thirds of its territorial area and population, but retained two thirds of the vineyards, so that the proportion of area under vine cultivation to the whole area is now twice as much as in pre-war times. As the home market can only now absorb a small part of the production of wine while the possibilities of marketing the product abroad are reduced, the encouragement of the production and export of table grapes became a necessity, since about one tenth of the population gain their livelihood by vine cultivation. Up to the present time however it has not proved possible to find the funds which would be required by the growers for bringing some part of their vineyards under the improved cultivation necessary for the table grape varieties or for laying out of new vineyards. Consequently little has been done beyond bringing the more suitable kinds of wine grapes to market as fresh fruit. The only large scale cultivation of table grapes, properly so called, is in the neighbourhood of the large towns. The most important is the production in the environs of Budapest, or in the neighbourhood of Kecskement, Gyöngyös and Pecs. In these parts the well known varieties, Chasselas, Muscatella, and also local varieties such as Passatutti are gathered.

Export of table grapes is mainly to the nearby markets of Austria and Poland. Although the market conditions for the Hungarian growers have never been satisfactory in consequence of the causes mentioned, the exports rose rapidly after 1927, in which year the total was only 6000 quintals; in 1930 an export figure of 177,000 quintals was reached. This rise in exports was due to the forcing of the product on the Czechoslovakian and especially on the German market.

Export of Table Grapes from Hungary.

YEAR	In 1000 pengő	In 100 quintals				
		TOTAL	including exports to:—			
			Germany	Austria	Poland	Czechoslovakia
1928	1,672	223	17	100	61	46
1929	4,131	743	55	367	150	164
1930	6,174	1,767	719	622	232	164

Hungary imports table grapes on a small scale only.

Import of Table Grapes into Hungary

YEAR	In 1000 pengő	in 100 quintals		
		TOTAL	including imports from:—	
			Italy	Spain
1928	77	5	1	4
1929	49	4	—	3
1930	56	3	—	—

YUGOSLAVIA.

The cultivation is predominantly that of wine grapes. Table grape production had already been established in the neighbourhood of Smederevo for the supply of the Belgrade market, and as a result of the great difficulties attending the sale of wines it has been introduced in other localities, as for instance in Novisad, a district very favourably situated for the trade with the north. The

Export of Table Grapes from Yugoslavia.

YEAR	In 1000 dinars	In 100 quintals							
		TOTAL	including export to:—						
			Germany	Greece	Italy	Austria	Poland	Czechoslovakia	Hungary
1928	9,295	184	4	—	—	124	—	41	5
1929	8,789	182	—	—	12	158	—	2	2
1930	11,410	397	16	2	—	313	11	26	25

export has developed in connection with the expansion in the export trade in other kinds of fruit. In 1926 the grape export was approximately 2600 quintals, and in 1930 about 40,000 quintals were exported. Grapes take the third place after dried plums and apples in the export of fruit. The greater proportion of the grapes go to Vienna, which is reached in 30 hours by the fast fruit expresses; a smaller proportion goes to Czechoslovakia.

BULGARIA.

Increased efforts were made after the war to extend vine cultivation, in view of the loss of territory and the diminishing profits on cereal cultivation, and in consequence the wine growing industry has considerably expanded. The area of the vineyards has since 1914 doubled. Although at the present time the production of wine grapes takes the first place, during the last few years, in consequence of the difficulty attending the sale of wines, table grape growing has been on the increase. On the whole the climate is favourable to this production. The varieties chiefly planted, the Afus Ali, Dimiat and Muscat, are remarkable for the length of the clusters, the size of the berries and high sugar content. The ripening season of the grapes is fairly long; it begins at the beginning of August and lasts till the end of November. The production is concentrated in the following places: Gorna Orehovitza-Leskovetz, Pavlikeni, Plevn, Russe, Preslav and Schumen.

Table grapes were exported for the first time in 1926, and the export figures have risen subsequently from year to year. The exports from 1926 to 1930 were as follows (in 1000 quintals):

1926	1.6	1929	21.1
1927	5.6	1930	27.7
1928	9.5		

Bulgarian table grapes go mainly to Austria (Vienna) and Germany (Berlin, Leipzig, Dresden and Hamburg).

Export of Table Grapes from Bulgaria.

YEAR	In 1000 levas	In 100 quintals			
		TOTAL	including export to:—		
			Germany	Austria	Czecho-slovakia
1928	13,626	95	0	92	3
1929	31,760	211	29	177	3
1930	—	277	—	—	—

In the opinion of the exporters the rise in the export figures would have been much larger, if the proper rolling stock (refrigerator trucks) had been available, and if it had been possible to speed up the transport arrangements, the time now taken in transit from Sofia to Berlin being 5 to 10 days. The trade organisation methods are also not yet adequate. Frequently with a view to early placing on the market, the grapes are picked unripe or during rain, badly sorted and packed. Accordingly the Export Institute established by the Bulgarian government in 1930 has intervened and has published strict regulations dealing with the grading and packing of table grapes for export, with a view to achieving an increased marketability of the product.

There was a small import of table grapes before the war, but this has now disappeared.

RUMANIA.

Before the war Rumania was a grape importing country. The average for the period 1929-13 was an import of 18,600 quintals; in 1912 the import was 31,600 quintals to the value of 910,000 *lei*. No export took place. After the world war the position of Rumania was fundamentally altered. The annexation of Bessarabia was the main factor in bringing about the transition from importation to export of a surplus. A small proportion only of the whole area under vine cultivation is used for table grape production. The production is however greater than appears from the export figures, as only a part is exported. Owing to the absence of statistical data the production figures cannot be given. There was great fluctuation in the volume of the export till quite lately, due partly to the varying market capacity in Poland, the destination of nearly the whole of the Rumanian export, and partly to the very defective initial organisation of the export trade. In the last few years however a more uniform development of the export is noticeable, the figures (in 100 quintals) being as follows:

1921	0	1926	6
1922	5	1927	48
1923	43	1928	86
1924	204	1929	135
1925	92	1930	384

In 1930 the Rumanian Export Institute also issued regulations as regards quality and packing of grapes for export, with a view to placing on the Central European markets goods to which no exception can be taken. The transports directed abroad are under the control of an official of the Export Institute, and at the same time, to avoid delay in delivery, are under the supervision of the Customs authorities.

The following figures show that up to 1929 the Central European market was of no importance.

Export of Table Grapes from Rumania.

YEAR	In 1000 lei	In 100 quintals		
		TOTAL	including export to:—	
			Germany	Poland
1927	3,576	48	25	23
1928	—	86	—	—
1929	—	135	—	—
1930	55,011	384	31	349

There is no import of table grapes worth mention.

GREECE.

The table grape trade was in pre-war times only of subsidiary importance in the extensive vine cultivation of Greece. By far the larger proportion of the grapes were used for wine or dried. By the acquisition of Crete (in 1913) where table grapes were grown on a large scale, this branch of production underwent expansion which for the first time made possible a somewhat large export of table grapes from Greece.

The export figures rose after the war, as cultivation of the vine in Greece became in part directed towards the production of table grapes. The international crisis in regard to sale of wines was felt the more acutely in Greece as there had been larger grape harvests in consequence of more heavy manuring and in spite of a slight diminution in the areas under cultivation, while on the other hand the export of Greek wines became a matter of difficulty.

There was no serious difficulty, however, in stressing the production of table grapes, as the greater proportion of the grapes which had heretofore found their way to the wine press were also suitable for sale as table grapes. All that was necessary was that the harvesting methods should be adapted to the new objective, a closer attention should be given to the grading, the transport arrangements improved and the appropriate trade organisation established. A re-adaptation on these lines took place in all the provinces of Greece. As in pre-war times, Crete stands at the head in respect of production, followed by Central Greece and Thessaly. In Crete the variety Heracleion is mainly cultivated, in Greece proper the very early Depadiki, which is ready for shipping by the middle of July, the Sultanina, Rasaki and some later varieties. Grapes are packed for despatch in boxes.

There has been a rapid rise in exports, the figures from 1921 to 1930 being as follows (in 1000 quintals):

1921	16	1926	53
1922	19	1927	51
1923	35	1928	59
1924	31	1929	82
1925	62	1930	73

* *Ec. II Engl.*

The exports amount to nearly one fourth of the total production and have been up to the present almost exclusively directed to Egypt.

Export of Table Grapes from Greece and Crete.

YEAR	In 100 drachmas	In 100 quintals			
		TOTAL	including export to:—		
			Austria	Egypt	Tripoli
1911	(1) 2	1	—	—	—
1911	(2) 101	59	—	78	—
1912	(1) 6	3	2	—	—
1912	(2) 86	61	6	68	1
1913	(1) 33	17	17	0	0
1928	14,744	591	0	591	0
1929	32,163	821	—	816	—
1930	33,556	730	—	685	—

(1) Greece in 10,000 oka. — (2) Crete.

There have been no imports of grapes into Greece either before or after the war.

Until a few years ago the Greek grapes encountered no serious competition on the Egyptian market. Quite recently Palestine and Syria, in both of which there has been a considerable expansion of table grape production, have entered the Egyptian market which lies so conveniently near, and find purchasers without difficulty for their excellent quality products which are offered at low prices. The Greek Government has accordingly been induced to encourage export to the European markets, and in particular by an adjustment of the transport question. Cheap freight rates are being arranged on the Greek railways for table grapes for export. A larger number of refrigerator trucks have been ordered expressly for the transport of table grapes to Central Europe, and are already partly in use. Vessels fitted with refrigerator compartments are on order for the Crete-Salonica steamship service, the intention being to forward the grapes from Salonica by road to Vienna and Munich. The cool chamber steamship service is to be extended to London. With a view to the capturing of new markets, the Greek Government has offered export premiums on grapes intended for West or Central Europe, the grant of premiums being associated with a control of grading and packing conditions.

RUSSIA.

Within the wide bounds of Russia are certain districts exceptionally well suited for the cultivation of the vine. The grapes of the Crimea, Transcaucasia and Turkestan are especially renowned. In pre-war times Bessarabia was included

among these areas. At that period Russian grapes were chiefly utilised for internal consumption. Bessarabian grapes went mainly to Warsaw and the other larger towns of Poland. The Crimean grapes were for the most part consumed in South Russia, while the Asiatic product either found its way to the local markets, including some of considerable importance, or reached the markets of Petersburg or Moscow. The great distances, however, separating the Asiatic producing areas from these latter markets, together with the unsatisfactory transport system, made this inland trade in table grapes extremely difficult, so that it was a much simpler arrangement for the fruit trade in Petersburg or Moscow to organise import of table grapes from Spain through Germany. The consequence was that in the pre-war years there was an excess of imports amounting on an average of the years 1909-13 to 15,406 quintals, the maximum being considerably higher.

After the war the Russian Foreign Trade Commissariat was unable to release currency for the table grape imports, quite apart from the fact that the former class of purchasers no longer existed. On the other hand, the need of obtaining foreign money acted as a powerful inducement for directing the internal production of table grapes into export channels. Laying out of new vineyards, improvement in methods of cultivation, grouping of small vineyards into large areas under State control, all were to contribute to the increase of production. In Sevastopol and in Poti (Caucasus) cool houses were built for fruit, mainly for apples but also with the object of receiving table grapes. The "Plodoexport", which unites all organisations dealing with the fruit and vegetable trade, requires the trade and transport methods to be systematically organised with a view to increased capacity for export.

In 1929 there were exported for the first time 11,500 quintals to a value of 290,000 roubles, and in 1930 the export was of 5600 quintals to the value of 106,000 roubles. The Russian statistics do not distinguish the destinations of the grape exports, but, according to the statistics of the importing countries, Germany took from 2400 to 2500 quintals, while the remainder was divided between Poland and other countries bordering on Russia. The consignments of grapes reached Germany well graded and in good condition, and were suitable, like those of Spanish origin, for storage in cool chambers.

Export of Table Grapes from the U. S. S. R.

	in 1000 roubles	TOTAL in 100 quintals
Year 1929	290	115
» 1930	106	56

(to be continued)

Prof Dr. KURT RITTER and Dr. MARTIN GUTTFELD

ECONOMIC AND SOCIAL CONDITIONS OF THE AGRICULTURAL CLASSES

Rural Housing (*Concluded*).

In ESTONIA since the war each successive year has seen an increase in the construction of rural dwelling houses, the fact being acknowledged that the rural exodus which is causing considerable anxiety is to a great extent attributable to the general insufficiency of housing accommodation in the country.

The encouragement of the building of rural dwellings is contemplated by a law enacted in 1926, which prescribes the allocation in the Budget of the sums required for granting building loans.

The following statement shows the sums granted for this purpose in succeeding years:—

Year	Amount (crowns)
1926-27	100,000
1927-28	—
1928-29	50,000
1929-30	300,000
1930-31	137,425
1931-32	100,000

The loans were almost exclusively used to build cottages, or small houses with a small piece of land attached, for artisans, fishermen, farm workers, foresters or gardeners.

According to the regulations issued by the Government for the carrying out of this law, the loans pay an interest of two per cent. and are amortisable in 30 or 41 years.

The amount of the different loans depends on the building materials employed; for wooden buildings the loans are up to 60 per cent. of the building costs, for buildings in stone or pisé they go up to 80 per cent.

The agrarian reform has had a marked effect on the aggregate construction of rural dwellings, nearly 24,000 new dwellings having been erected in the carrying out of the reform.

The funds required for making these loans were supplied up to 1929 by the Treasury and in the following years by the "Land Settlement Capital Fund."

Further encouragement to this building is given by the State Agricultural Bank which arranges mortgage loans for the purpose up to 60 per cent. of the estimated value of the real property mortgaged.

Building of dwelling houses with the aid of State loans is made conditional on the fulfilment of certain minima requirements both technical and hygienic.

According to the building regulations the ceiling height of the rooms must be at least 245 cm., the proportion between the square measure of the windows and that of the flooring must be at least 1 to 10, the privy if within the house must be furnished with a ventilating shaft, etc. Generally speaking the building is carried out in accordance with the relatively simple life of the country side.

Only in isolated cases is water laid on, and since there are no electric supply depots furnishing long distance current, electric lighting is found only in the immediate neighbourhood of the electricity stations.

In the new houses the water supply is often brought from deep wells by pipes. Usually however use is made of ordinary wells which can be covered and lined with stone, wood or circular slabs of cement and which are often fitted with an iron pump.

Only rarely are found houses with bathrooms, as in the country the traditional practice is still observed of separately built stoves with an equipment for inducing sweating.

An idea of the measurements of these houses can be obtained from the 1929 census.

In the 129,802 cases included in the census the basic area of the houses grouped according to size of farms was as follows:

Size-class	Number of dwellings * included in the census	Average area sq. metres	Average area per inhabitant
1- 5 ha	20,815	57	15
5- 10 "	19,672	60	14
10- 20 "	33,048	69	14
20- 30 "	24,005	79	15
30- 50 "	23,189	89	15
50-100 "	7,619	106	18
100 ha	1,454	224	41

In the IRISH FREE STATE, in spite of various difficulties, progress has been made in rural housing especially during recent years, and at the present time the Government is engaged in the study of schemes for more complete and practical action (1).

In the rural districts the usual type of dwelling is a three-roomed house, while the typical rural family consists of five persons, although 52.5 per cent of rural families consist of six persons or more.

A recent official report shows that the former rural dwelling with damp clay floor, a thatched roof always needing repair, ill built walls, small fixed windows admitting very little light and almost no air, inhabited by too large

(1) S. J. BRANDENBURG: Housing Progress in the Irish Free State. *The Journal of Land and Public Utility Economics*, Vol. VIII, No. 1. Chicago, February 1932.

a number of persons, situated in a hollow for shelter from the storms often with an open drain or pool of liquid manure in front of the house, is replaced by a new type of building, built solidly and mainly of masonry, situated with due regard to health. This dwelling has a good appearance, the roof is of slate, the windows can open and are large enough to give plenty of light to all the rooms. It is obvious that this new system will lead to improvements in health conditions, protection against disease while contributing to the general welfare.

In the last fifty years rural housing improvement has been a matter of concern to the Government British and Irish. The present Government has paid special attention to providing farm workers with livable houses and with half an acre to an acre of land. These have been erected under the special supervision of the local sanitary authorities. State grants and loans on favourable terms have enabled the local authorities to build and to let cottages at low rents (on an average, 1s. 3d. per week for cottage and garden). Up to 1930 loans were made by the State for a value nearly approaching £7,270,000, nearly half being granted before 1906. Such loans were to be repaid with a period of from 30 to 50 years, in instalments, principal and interest together, the rate varying from $3\frac{1}{2}$ and $4\frac{1}{2}$. By the law of 1906, further loans were granted subsequently, repayable within a period of 68 years and a half, at the rate of $3\frac{1}{4}$ per cent., principal and interest together. Since the beginning of this activity in 1883, more than 42,000 cottages have been built.

General encouragement has been given to rural building by successive laws approved since 1924. Under these measures grants have been made to private persons who wish to build houses in the rural regions. In accordance with this recent programme more than 9000 houses have been erected representing for the State an average subsidy of £66 per house. The present Government of the Irish Free State usually makes a grant to the local authorities of £50 per cottage, or nearly one sixth of the cost of building.

In the Congested Districts zone, the Housing Act of 1929 makes provision for State grants : for erection or improvement of a house, respectively £80 and £40 ; for construction or renewal of a poultry house or a piggery, respectively £5 and £2 10s.

With the approval of the Minister for Lands and Fishery and on conditions established by him, the State may also grant loans, the total amount of which does not exceed the total of previous grants.

The grants are outright gifts ; and the loans are made on terms so favourable that for half or even three quarters of their normal amount they may in reality be considered as being gifts. They are repayable in 68 instalments, calculated according to the borrower's capacity for payment ; for example, a debt of £100 may be extinguished in a period of 68 annual payments of £1 10s., in this way only about £2 more than the principal is repaid.

Peasant housing conditions in GREECE, although not presenting any very abnormal features, cannot be considered as completely satisfactory.

There are two common types of dwelling. In the first place there is the house on the ground level, consisting of one or two rooms, without stabling

or storehouse. In this case the hygienic conditions leave much to be desired as human beings and animals are living together or side by side. This is not very serious as there is not much live stock kept as a rule in Greece. Usually it is only a question of one or two goats and the mild climate allows the peasant to turn these loose in the open air for the greater part of the year. On the other hand, in the more populous parts the houses are more cared for. Usually they are built in two floors, the ground floor being used as stabling and storeplace, while the upper floor forms the family dwelling. Although better, this type is not altogether satisfactory for the humans, as they have to breathe the tainted air from the stables.

In some parts of Thessaly and Epirus thatched huts are found here and there. Latterly when provision had to be made for the refugee peasants, State grants of land and houses were given. The houses built usually consisted of two rooms with or without stabling and storeplace. At first four-roomed houses were also built but very rarely. A special type was built, especially in Macedonia, for fishermen, silkworm breeders, tobacco growers, according to the requirements of their occupation. All these houses have also some metres of land which may be used as a garden. They are built in stone, bricks or cement. In some cases there is an earth floor and the tenants are expected to cover it with a wooden flooring. The number of these houses assigned to the refugees was 129,934, out of which 52,561 were built by the Commission for the settlement of the refugees, and 13,487 by the State. In addition 63,886 houses abandoned by Turks and exchanged Bulgarians were assigned to the refugees.

On account of the serious internal problems that have been engaging attention since the war, there has not yet been the opportunity of formulating a State programme of improvement of rural housing. In these last few years the State has made great efforts for the improvement of the economic and social conditions of the peasants, an improvement which was felt to be a matter of urgency. The agrarian reform was undertaken, and 120,149 share tenants and landless cultivators were transformed into small holders, and 135,265 refugee farm families were placed. As was natural the detailed work of carrying out these schemes and the very large expenditure necessary absorbed all the attention of the State and made such inroads on its revenues that it proved essential to postpone to a later date questions the importance of which was fully recognised.

In HUNGARY, where a very large proportion of the population is engaged in agricultural work, the great importance of a sound hygiene for the rural population has long been recognised.

During the last twenty years preceding the war as well as quite recently the hygiene of rural housing in Hungary has been developed on continuous scientific lines. Although, however, the majority of rural dwellings, especially the newly built houses, conform fairly exactly to hygienic requirements, it cannot be denied that there is still much to be accomplished in this direction.

In the Transdanubian regions and partly also in the mountainous region of the North, the population live in small towns and in villages; in the plain on the other hand large villages and large towns are found. A considerable

part of the population of these regions (the Great Plain of Hungary, *Alföld*) does not live packed together in towns but is dispersed in the surrounding areas, on farms often distant several kilometres from the centre. There are some disadvantageous consequences of this dispersion as sanitary and hygienic assistance is thus rendered extremely difficult. Owing to the composition of the soil, which crumbles very readily on the *Alföld*, and to the long continued droughts of summer, the air in the villages is filled with dust (1).

The rural dwellings consist only of a groundfloor; they lie along the roads which are very wide, and are often separated by gardens or other open spaces.

In the country districts, the housing accommodation varies greatly according to the economic conditions, the crops grown and the local circumstances. In parts where there are no quarries or brickworks, and everywhere in the poorest villages, the houses are mainly built of clay, that is, either with sun-dried bricks, or merely with clay pressed in a rough mould of pieces of wood. The base of such houses, especially the newer ones, is usually constructed of stone or bricks. At the present time the authorities are proposing also to isolate the walls by brick or stone supports. In many places there are still rough shelters constructed of clay the ventilation of which is very defective.

The widely extending villages of the plain are often without any drainage system. A night-soil removal system exists in the larger and better organised villages; elsewhere the material is mixed with the stable manure and spread on the gardens or fields. In this way infection of the soil readily takes place, and since the level of the underground waters is frequently high, the result is that the water from the ordinary wells in the villages is with few exceptions very bad. In some villages there is nothing but a few shallow pools of water. In the *Alföld* region drinking water can only be obtained by sinking deep, or artesian, wells. There are more than 3000 artesian wells in existence, with an average depth of 200 metres, and an output of from 100 to 150 litres of water per minute each.

Since 1901 State encouragement has been given to building of houses for agricultural workers, and subsidies have been given for the purpose. The total amount of the grants made by the State during the five first years was 290,239 crowns. From 1906 a credit was placed on the Budget each year for this purpose, the amount being 200,000 crowns in 1906 and 250,000 crowns in 1907. Subsequently Law XLVI of 1907 was passed authorising the Ministry of Agriculture to promise an annual sum of 300,000 crowns for purchase of sites for the construction of houses for agricultural workers. This sum was subsequently increased with the result that in the period from 1909 to 1920-21 it amounted to 500,000 crowns. After 1921, at the time of the inflation, sums were shown on the budgets of the State as also paid for this purpose for a period up to the financial year 1926-27 inclusive. The activity of the State was, after 1927-28, replaced by that of the Association for Rural Housing (*Falusi Kislakásépítő Akció*), a co-operative society formed with State financial assistance, which had

(1) See SCHOLTZ C.: Le service sanitaire en Hongrie. Budapest, 1928.

already begun operations in 1925. At the end of 1930, the number of persons who had obtained loans from this Association for the purchase of material to be used for building their own houses was 31,661, and the credits thus granted amounted to 43,668,920 crowns.

In the regulation relating to the buildings erected in connection with the agrarian reform which was introduced after the war, attention has been paid, so far as possible, to hygienic requirements.

The recent intervention of the Hungarian Chambers of Agriculture for the improvement of the hygienic conditions of the farming classes is also worthy of mention. One of the most striking results is that the accommodation intended for farm servants and other persons in service in rural districts is becoming rapidly more satisfactory from the hygienic standpoint.

In the booklet entitled "Les habitations rurales en Europe" published by the International Institute of Agriculture, there is an account of the principal new departures taken during recent years in ITALY in reference to rural housing; among these may be noted two enquiries of special importance. One of these has been made by the *Istituto Nazionale di Economia Agraria* and deals with the development of rural building in the various regions, and the other which has been carried out by the *Confederazione Nazionale dei Sindacati Fascisti dell'Agricoltura* and deals with the general living conditions of the peasants (*contadini*) and the farm workers (*braccianti*), opens with the detailed examination of different aspects of the rural housing problem. In addition mention may be made of the opening of a number of prize competitions for model rural dwellings corresponding to farms of differing size and position, or to different farming systems (1), and, more recently, the opening of a rural housing and model farm exhibition, organised under the auspices of the Ministry of Agriculture and Forests on the occasion of the Second "Fiera del Levante" (or exhibition of the products of South-East Italy) which was held at Bari.

In regard to the State activity, there are several measures in existence, contained in different laws (2), for encouragement of rural building; in particular the law of 24 December 1928, No. 3134, on integral land improvement is intended to ensure the full development of rural building operations. It prescribes the building of large villages (*borgate rurali*) and of isolated rural buildings, towards the construction of which a contribution is made by the State varying from 10 to 30 per cent. of the cost price.

By a recent measure (Royal Decree No. 131 of 20 March 1930), the materials employed in the construction and repair of rural buildings have been declared

(1) "Progetti per costruzioni di case coloniche sotto gli auspici del Ministero dell'agricoltura e delle foreste, a cura della Cattedra Ambulante di Agricoltura per la provincia di Perugia." Perugia 1930. — GARAVINI Dott. Giorgio: "I migliori fabbricati rurali recentemente costruiti in provincia di Siena", Cattedra Ambulante di Agricoltura per la provincia di Siena, Siena, 1930.

(2) See CAMANNI VINCENZO: "La politica edilizia rurale in Italia." *L'Assistenza Sociale Agricola*, Nos. 1 and 2, Rome, January and February, 1932-X. — FONTANA ATTILIO: *L'edilizia rurale nelle provvidenze legislative. Rivista di Politica Economica*, No. 4, Rome, 30 April 1932-X.

exempt from the tax on commodities consumed (*imposta di consumo*). This exemption extends to all buildings or parts of buildings, including their accessories, when belonging to the owner of the lands on which they are being placed, and utilised as :

(a) dwellings for land workers, foremen, overseers, persons in charge of live stock, etc., directing or effectively assisting day labourers in the accomplishment of their daily work ; as well as dwellings for stewards and other persons responsible for live stock, etc.;

(b) stabling for work animals or grazing stock ;

(c) places for storage and first manipulation of the agricultural products of these same lands, or for storage and safe-keeping of machines and implements used in the cultivation of the soil.

The development of rural building on the Roman Campagna is remarkable. For some time past the reclamation and settlement by the owners themselves of a zone of nearly 200,000 hectares has been encouraged and facilitated in various ways by special legislation relating to this region. During the period 1926-1930 land reclamation schemes to the number of 219 have been drawn up and rendered compulsory for the land owners. These schemes relate to a total area of 81,000 hectares, on which have been erected farm settlers' dwellings, stabling, and silos. In addition farm roads have been made and plant installed for the supply of drinking water and for irrigation. During these five years 273 loans have been made for the financing of these operations, up to a total amount of 243 million liras.

In the Roman Campagna the number of the rural dwellings which in 1922 was 8,830 rose to 14,165 in 1927 and to 19,412 in 1930.

Mention should also be made of the establishment in this zone of villages (*borgate rurali*). The building of these was begun in 1913 and at the present time there are nine in existence, consisting of small houses with a minimum of half a hectare of land each, and normally inhabited by cultivators and artisans who are engaged especially in agricultural industries. Nearly all these villages have a church, a school, a post office and a sanitary station.

In addition, as a result of the Royal Decree of 28 November 1928, new types of agricultural villages are in course of being constructed in Italy, the following principles being followed in their formation. Whenever operations such as land reclamation, land development operations, regulation of water courses, construction of ordinary roads or railways requiring the employment of a large body of labour, have to be carried out in depopulated and unhealthy localities, it is considered advisable to give a certain stable character to the dwellings intended for the workers. In such a case they will have to be so constructed that they can easily be transformed, as soon as the work is accomplished, into rural villages which may accommodate small farming families. Any scheme for the foundation of villages must also include estimates of the expenditure for the supply of drinking water, for drainage, for mechanical means of protection against malaria, for the church, the school, the medical station, as well as for the provision of a piece of land to be used for vegetable and fruit growing to the extent of about one third of a hectare for each family. In Sardinia, the

"Mussolini Village" presents a typical example of a land settlement of this kind carried out by workers coming from other regions of Italy.

Special mention should be made of the activity in regard to rural building displayed by the *Opera Nazionale Combattenti* (National Service-Men's Institute) which is a semi-official institution of a corporate character and self-governing, placed under the supervision of the Head of the Government. The object of this institution is to contribute to the economic development of Italy, with special attention to land development operations and the development of medium and small ownership, so as to increase production and to make possible the permanent existence of a more numerous population in the rural localities.

The *Opera Nazionale Combattenti* was founded in 1919 with a capital of 300 million liras: it has real estate of its own, consisting of lands acquired by the ordinary forms, lands which have been transferred to it in virtue of special legislation and lands which were formerly Crown property and which the Crown has granted to the *Opera*.

For the due prosecution of its activities, the *Opera* is empowered by law to demand the transfer to its ownership of lands, whoever may be the owner, when such is subject to land improvement obligations or seems likely to undergo land development on a large scale or industrial utilisations connected with the agricultural activity of the *Opera*, or when any such property is required for the construction of large villages or centres of land settlement. It may in addition demand the assignment in emphyteusis or on long lease of rural lands belonging to the State or to other public bodies, when it is required to utilise these lands to serve its own purposes.

Lands thus becoming an integral part of the real estate of this institution are subjected to large scale works of land drainage and cultivation improvements.

In regard to land drainage improvements and forest drainage schemes, the land reclamation activity of the *Opera Nazionale Combattenti* extends at the present time over an area of more than 450,000 hectares. In respect of development of agricultural lands, it extends over a territory of 41,472 hectares, including the zone of the "Agro Pontino" or Pontine Marshes, where land development operations have been accomplished on a large scale during the last few months. According to the development scheme established, more than 10,000 hectares of land in this zone have been in the course of 1932 transformed into farms including 520 rural dwellings which were in October ready to receive the same number of farming families.

In the construction of houses for farm settlers, the principle of the *Opera* is to adopt so far as possible the type of house most common in the region making any modifications or improvements that seem advisable so that the new dwellings may fully meet the requirements of a modern farm undertaking.

It is clear that the *Opera*, in forming new cultivation units, does not merely concern itself with the technical aspects of farming, but that it equally takes account of the environmental and hygienic conditions of the population living in the regions subjected to land drainage and irrigation operations and on the farm lands coming under its activities. Great attention is given to the construction of rural buildings in strict accordance with modern hygienic requirements.

Moreover, with the object of securing a better organisation of medical and surgical services, and more especially those providing prophylactic treatment against malaria, for the areas wherein land drainage and land development operations are projected, the *Opera Nazionale* has come to a special agreement with the Italian Red Cross.

Under this agreement, whenever it is considered advisable, the Red Cross makes provision for the establishment of a regular medical station with small infirmary and doctor in the reclaimed regions and in the farm lands dependent on the *Opera*.

Another agreement has been made between the *Opera* and the National Institute for anti-malarial sanitation of the Pontine Marshes, which is in charge of the sanitary service and the anti-malarial prophylactic measures as well as the mosquito campaign in the zones belonging to the *Opera*.

There are 949 houses for farm workers on the farm lands belonging to the *Opera*. To this figure there should be added the 520 houses already constructed in the zone of the Pontine Marshes.

The rural dwellings to be found on the farm lands of the *Opera Nazionale Combattenti* are usually built in two stories: ground floor and upper floor; there are in addition sheds for stock, storeplaces and other buildings differently arranged according to the needs of the farm to which the house belongs. As a general rule, one rural dwelling serves for one family, exceptionally for two or more, as may be seen on the farm of S. Paolo d'Argon (Bergamo) where the rural dwellings have been by tradition built to accommodate a fair number of families, even as many as twelve.

In this connection it should be added that the *Opera* has also made provision for the foundation of villages properly equipped with the essential services. More precisely these are: "Borgata rurale di San Cesareo" (Rome), including 61 houses intended for about 120 families; "Borgata rurale di Montegrosso" (Bari), consisting of 25 houses for 42 families; "Borgo Vittoria" (Bolzano), 10 houses for 12 families; "Borgo Piave" (Lecce), consisting of 9 rural buildings, two containing 9 dwellings each, and 7 houses for farm settlers of two rooms each; "Borgo Grappa" (Lecce), consisting of five houses.

The houses for settlers in each farm undertaking dependent on the O. N. C. are distributed in the following manner:

"Agro Pontino" (Rome): 520 houses; six different types; each for a single family and for a holding of about 20 hectares.

Farm undertaking of Alberese (Grosseto): 101 houses, including three re-conditioned and 93 built entirely new by the *Opera*; each for a single family and for holdings varying from 17 to 35 hectares.

Farm undertaking of Altura (Pola): 10 houses, five built by the *Opera*; each for one family.

Farm undertaking of Annone Veneto (Venice): 46 houses, all newly built, for a single family, and for holdings of from five to ten hectares.

Farm undertaking of Casanova (Turin): 30 houses for settlers, all of new construction and each for a single family; three types, one for an irrigated farm holding of 8 hectares and two for unirrigated holdings of from 28 to 30 hectares.

Farm undertaking of Castel d'Alfiolo (Perugia): 39 houses, of which two are re-conditioned, all for a single family and for holdings of from 6 to 32 hectares.

Farm undertaking of Cioffi (Salerno): 5 houses, one re-conditioned and 4 built by the *Opera*; two types, all for one family each and for holdings of from 21 to 68 hectares.

Farm undertaking of Coltano (Pisa): 43 houses, four re-conditioned and 39 built new; eight different types; 34 for a single family each and for holdings of 15 to 28 hectares; 9 for two families and for holdings of 16 to 25 hectares.

Farm undertaking of Frigole (Lecce): 19 houses, four re-conditioned and 13 built by the *Opera*.

Farm undertaking of Isola Sacra (Rome); 17 small houses for gardeners, of new construction, for kitchen gardens of from 3 to 5 hectares; 18 houses for settlers, of new construction, for one family each and for holdings of 12 to 20 hectares.

Farm undertaking of Merano (Bolzano): 18 houses, all re-conditioned by the *Opera*, for holdings of from 8 to 34 hectares.

Farm undertaking of Poggio a Caiano (Florence): 25 houses, already in existence at the date at which the farm land became the property of the *Opera*, rendered habitable by the *Opera* itself, for one family each and for holdings of from 15 to 34 hectares.

Farm undertaking of Sarteano (Siena): 13 houses, already in existence at the date at which the farm became the property of the *Opera*: 6 houses for one family each, 5 for two families each, one for three families and one for four families; all for holdings of from 15 to 34 hectares.

Farm undertaking of Sanluri (Cagliari): 7 houses of new construction, for two families each and for holdings of from 50 to 67 hectares.

Farm undertaking of S. Paolo d'Argon (Bergamo): 26 houses, 23 re-conditioned and three of new construction; 5 houses for one family each, 6 for two families, 4 for three families, 2 for four families; three for five families; one for eight families; one for 11 families; one for 12 families.

Farm undertaking of Stornara (Taranto): 10 houses, two reconditioned and 8 of new construction; for from two to four families and for holdings of from 20 to 40 hectares.

Farm undertaking of Val Sellustra (Bologna): 7 houses, one of new construction, for one family each and for holdings of from 26 to 65 hectares.

In LATVIA, after the war, the Government provided all possible financial assistance for the landowners in the work of reconstruction of their farms. Regulations relating to these grants were made under a number of laws: including the general law "Law on the credits and subsidies for rural buildings" and the "Law on dwellings for agricultural workers".

As regards improvement of the hygienic conditions of farm workers and the rural housing question, the action of the Government has been as follows:

In the rural centres belonging to the State, buildings suitable for transformation into dwellings, and not required by the State for its farms, schools, hospitals, etc., are restored and set aside for the accommodation of farm workers.

In addition, the State grants a small plot of land for a vegetable garden. These dwellings are leased to farm workers and to artisans at moderate rents, a preference being given to local workers, to widows of artisans, and to war-wounded men.

Grants have been made by the State, in ownership on State lands, of parcels of land up to 10 hectares, to farm workers and artisans who are anxious to build a house and who are landless. The extent of these plots varies according to the distance of the locality respectively from the towns, other communes, railway stations and other localities more or less inhabited.

State aid consists in :

- (a) long term loans ;
- (b) subsidies amortisable after the building is complete ;
- (c) building timber from the State forests, supplied at one fifth of the official price.

The loans are made by the State Land Bank. The total of the loan depends on the extent of the land ; to owners of plots of land of less than four hectares a credit is granted up to 600 *lats* (gold francs) for building a wooden house, and up to 1,800 *lats* for the construction of a stone house ; for owners of a plot of land of more than four hectares, the total of the loan is up to 150 *lats* per hectare for the construction of stone houses and up to 450 *lats* per hectare for the construction of fire proof houses.

A part of these loans is considered by the State as a grant to be amortised after construction. The non-repayable portion of this grant is from 100 to 500 *lats* on each house for wooden dwellings with fire-proof roofs, and from 500 to 1000 *lats* on a house built of stone. If the wooden house is coated with a varnish which preserves the wood from rapid decay, 50 to 100 *lats* are taken off the amortisation in respect of each building.

For the construction of these houses, the Ministry of Agriculture grants, at one fifth of the official price, a fixed quantity of building timber coming from the State forests. In addition, the Ministry also prescribes the granting, in place of building timber, of contributions in the form of fire-resistant material or the equivalent of these materials in cash.

The State also makes loans by the intermediary of the State Land Bank, as well as building timber at one third of the official price, for the equipment of dwellings intended for farm workers.

In spite of the measures adopted by the State for the regulation of the question of farm workers' dwellings, there are still many properties on which there is very little suitable accommodation for workers, and especially a shortage of accommodation for workers' families. To meet this need, the Government is in the course of drafting a new proposal in accordance with which loans and subsidies for the construction of buildings intended for the accommodation of farm workers will be considerably increased in favour of landowners employing farm workers on their farms.

According to this proposal, for the construction of a wooden cottage for a working family, a loan will be made up to 1500 *lats* and for fire-resistant

cottages up to 2500 *lats*; for a wooden house with accommodation for two families the loan will go up to 2500 *lats* and for the same house in stone, up to 3000 *lats*.

After the houses are built, from 40 to 60 per cent. of the loan will be regarded as repaid.

The law on dwellings for farm workers also establishes the minima conditions which must be fulfilled by the respective premises. Thus the premises intended for a worker's family must consist in a large room, a kitchen, an outer room, a privy and outhouses. The minimum floor space must be 40 square metres; the minimum of premises for two families must be 80 square metres.

Buildings plans for dwellings for farm workers have been drawn up by the Public Works Section of the Ministry of Agriculture, which forwards these plans to persons concerned, giving at the same time technical advice through its engineer architects in the province.

For the manufacture of fire-proof building material (cement blocks, bricks, reinforced concrete, etc.) presses and machines have been purchased by the Ministry of Agriculture which places them at the disposal of landowners concerned.

By the provision of suitable dwellings it is hoped to attract to the country districts a larger number of workers, with the result of diminishing unemployment in the towns.

In LITHUANIA special present day interest attaches to the problem of rural housing for the following reasons:

(1) The necessity for rebuilding more than 1200 villages with 14,270 estates and 2000 farms (*sodyba*), destroyed either wholly or in part during the war.

(2) The application of the agrarian reform, involving the formation of new holdings, the enlargement of the already existing small holdings and the sub-division of village lands into independent holdings, rendering necessary the construction of many new houses. If it had been possible to carry out on normal lines the extensive work made necessary by the agrarian reform, it would have been accomplished between 1919 and 1931. During this period there would have been brought into existence 36,000 new landowners who were previously landless and these would have received on an average 10 hectares of land each, and would have had to build nearly 100,000 new buildings, reckoning an average of three buildings to each owner. In addition, 23,000 small holders would have had to be provided with nearly 4 hectares of additional land each and with 60,000 new buildings, as the old buildings were for the most part in bad condition. Finally, it would have been necessary to bring into existence 60,000 farms covering 13 hectares each, and to provide for the construction of 150,000 houses, since more than one half of the old houses had become uninhabitable.

(3) The development of agriculture and the improved standard of living in the country districts, which has rendered essential and urgent the construction of buildings of all kinds better corresponding to the needs of the rural population.

It will be readily understood that all these reasons that call for the construction of so large a number of new farm buildings of all kinds also make difficult the improvement of existing rural buildings in Lithuania, which is also much impeded by the scarcity of timber. It has not in fact as yet been practicable to proceed with the work of sub-division of village lands so far as relates to 5500 villages involving the distribution of nearly 900,000 hectares among farm workers, and there are still many houses to be built for the newly formed farms and for farms that have been enlarged.

The harsh and damp climate which prevails in Lithuania does not lend itself to building in masonry. In addition owing to the economic crisis the Lithuanian farmers have no large capital available, which compels them to postpone building, renewals and improvements which are not altogether necessary.

In Lithuania, the *sodyba*, which is the typical farm, consists of three or four separate buildings, one for the dwelling, another for the stabling, and in addition, the barn and the hay store. Only in the more northerly regions the building used as the dwelling has a roof in common with the other installations. In addition to this grouping of distinct buildings the *sodyba* has annexed a farm-yard, a kitchen garden, an orchard and a small garden. On the farms there are more fruit trees and more varieties than in the villages, as they serve to protect the houses from the cold winds.

Dwelling houses are for the most part constructed of wood, with one floor only of two or three rooms, divided by an outer room which gives access to the two lateral rooms, one called *gricia* for the family, and one called *seklicia* for the guests. Many well-to-do peasant farmers also possess rooms that can be utilised under the slope of the roof.

The roof is generally a thatch of straw, sometimes it is made of overlapping boards and is more rarely tiled. For new buildings boards are generally used and sometimes sheet iron. Thus, for example, in the district of Raseinis according to information collected by the Chamber of Agriculture it appears that out of 1319 buildings erected in 1931, including 446 dwelling houses, 126 were roofed with sheet iron, 720 with boards, 14 with tiles and 459 with thatch, so that not more than one third were thatched.

The rooms are not lofty – from 2 to 3 metres only – but the air is easily renewed by means of the windows and the wooden walls. The walls are white-washed on the inside. In the *seklicia* the floor is usually of wood, in the *gricia* of beaten earth; but with the more well-to-do peasants planks are everywhere employed.

The houses are warmed by means of stoves which are as a rule not very effective. Meals are cooked on these stoves, and in the new buildings a special type of hearth is added.

Generally speaking each farm has a well, which as a hygienic precaution is always covered. Owing to the high level of the underground waters drinking water is everywhere readily obtainable. The privies are usually primitive in construction and are at a sufficient distance from the dwelling.

Bath-houses are found in the province of Kaunas, in the villages not yet subdivided, in the proportion of one for two or three families; isolated farm-

ing families have one apiece at some distance from the dwelling. In Suvalkia these are less often found, as the peasants prefer to use bath-tubs.

The Ministry of Agriculture and the Chamber of Agriculture give every attention to the improvement of rural building. Plans and models of rural buildings have been prepared by the Ministry for farms of 5, 10 and 20 hectares, these being adapted to farms of recent formation and to the farms resulting from the division of villages and large rural estates.

The Government grants loans for a period of 20 years at 4 per cent. to persons undertaking the construction on improved lines of typical rural houses.

In 1929 a Rural Building Section was instituted at the Chamber of Agriculture, the object of which is to demonstrate the proper construction of houses for farm workers, from the technical standpoint and also with the view of securing the best output. Hints are also given on furnishing and management. This section supplies, at small expense, the plans, drawings and accessories for the equipment of rural dwellings, sends experts whose business it is to give all necessary explanations on the spot, arranges lectures on rural building questions and conducts press propaganda for the improvement of rural buildings. As there are in Lithuania very few specialists in rural building, the Chamber itself organises technical courses in building in clay, in reinforced concrete and in bricks. At the beginning of this year, the Ministry of Agriculture came to an understanding with the Minister of Internal Affairs, which is responsible for supervision of building plans, with a view to agreement between these two Ministries and the Chamber of Agriculture in regard to the general appearance and the hygiene of rural buildings. As a result of this agreement a legislative proposal in regard to this type of building will be presented this year.

Mention should be made of the efforts of the Ministry and the Chamber of Agriculture to stimulate the improvement of hygienic conditions in the country districts by diffusing among the women the first principles of hygiene and household management. During these last years especially, the Ministry of Agriculture has given a great impulse to the teaching of household management by introducing the subject into the curriculum of the ordinary mixed rural schools. Apart from these schools, there are eight special schools for the subject. The training of the teaching staff, lecturers giving courses in household management and practical teachers, has been carried out, since 1930, at the Agricultural Academy of Dotnuva, where a special section has been instituted for the purpose.

The Chamber of Agriculture organises on its own account courses in household management for young girls living in the country, gives lectures on housekeeping, infant hygiene and so on.

In every rural commune in SWEDEN, according to the Health Regulations of 1919 there must be established a Health Council, one of the duties of which is to endeavour to secure healthy housing. The buildings intended for dwelling houses must be so arranged as to avoid prejudicing the health of the occupants. Every room must provide the cubic space necessary for one person, and be so arranged as to allow of proper heating and protection against damp. Each

room must also have a window admitting sufficient light and allowing of the necessary renewal of air. The flooring of every newly constructed room or kitchen must be at least 30 centimetres above the surface of the ground. The Health Council is empowered to condemn rooms unfit for human habitation.

In some cases, in Southern Sweden for example, the provincial authorities have issued supplementary advice and instructions to the Rural Health Council. It is recommended that living rooms should not be constructed in stables or barns, unless such rooms can be completely isolated and provided with a fireplace. Living rooms should provide 20 to 25 cubic metres per adult unit or a somewhat smaller cubic space if several persons live in the same room. Rooms must be provided with a fireplace, and there must be in every room a window of sufficient size which must be capable of being opened. Double windows must be provided in winter. Doors should not open directly on the outer air and floors must be of wood.

Considerable light is thrown on rural housing conditions by two enquiries, one initiated by the medical profession and published in the autumn of 1930 (1), and the other carried out by the Swedish Administration of Labour and Social Thrift, known as the Social Board.

For the purpose of the former enquiry the information was collected by means of a questionnaire in a number of communes over the whole of Sweden during the years 1926 to 1929. Points were given to dwellings according to :

- (1) the nature of the soil on which they are erected ;
- (2) the nature of their foundations ;
- (3) their internal and external condition ;
- (4) the number of persons per room ;
- (5) the cubic space per person ;
- (6) the cubic space of bedrooms ;
- (7) the cubic space of bedrooms per adult unit (two children under 15 years of age = one adult) ;
- (8) the area of windows as a percentage of floor space ;
- (9) access to drinking water ;
- (10) the existence of pantry, cellar, wardrobes, and wash-house.

It was possible in this way to grade a dwelling quantitatively and qualitatively in points. The maximum number of points obtainable according to the scale was 38. A dwelling house which was awarded less than 20 points was considered as inadequate.

The report further distinguishes the occupations and social groups of occupiers. This makes it possible to consider separately the housing conditions of agricultural wage-paid workers and of those employed in other industries in the countryside.

For the purposes of the enquiry the households were divided into two groups - the well-to-do class (group A) and the poorer class (group B) - according

(1) PETERSSON ALFRED and STÉENHOFF G. : *Bostads för hållandena på landsbygden i Sverige. Från Karolinska Institutets Hygieniska Avdelning. Stockholm, Isaac Marcus, 1930. See also : "Housing Conditions of Agricultural Workers in Sweden". International Labour Review, Geneva, July 1931.*

as the annual income per adult (two children under 15 years old being taken as equivalent to an adult) was over or under than 300 Swedish crowns (*kronor*). Persons occupying a dwelling consisting of three or more rooms and a kitchen were classed in group A irrespective of their money income.

The enquiry had reference to a total of 1,781 workers' homes, half of which were the households of agricultural workers and half those of workers engaged in other industries. Rather more than half of the former group of households were grouped in the poor class. The number of persons taken into consideration was 7,280.

The large majority of the houses were built of wood, but of these most had a low foundation of stone. Of the whole number of houses in the communes dealt with in the enquiry, which were constructed on a moist soil, one-third were occupied by agricultural workers.

A certain number of houses were recorded as in a bad state of repair; 6.4 per cent. of well-to-do agricultural workers and 14.3 per cent. of poor agricultural workers lived in such houses. In addition, 50.8 per cent. of agricultural workers (43.5 per cent. of the well-to-do and 57.4 per cent. of the poor) lived in houses which were described as damp and cold.

As regards the number of rooms occupied by workers' households, it was shown that four-fifths of the poor agricultural workers did not possess two rooms and a kitchen, while more than half of the well-to-do agricultural workers were in the same position. Thus, a little over one third only of the well-to-do agricultural workers, and one fifth only of the poorer workers, occupied dwellings with two rooms and a kitchen. Three rooms and a kitchen were quite exceptional in the case of agricultural workers. The report states that from whatever point of view the situation be considered, the housing conditions as regards the number of rooms were especially unsatisfactory in the case of agricultural workers and *torpare* (1), even where they belonged to the well-to-do class. This is partly attributable to the fact that the dwellings often formed part of the wages of agricultural workers and that many of the dwellings dated from a time when one room and a kitchen or even one room with a fireplace was considered suitable accommodation.

As regards dimensions of dwellings, a fourth of all workers' households had to be content with 20 to 30 square metres. In addition the enquiry showed that 17.3 per cent. of the workers lived in rooms less than 2.10 metres in height, and only 8.5 per cent. in rooms of more than 2.70 metres high.

As regards cubic space, the agricultural workers' dwellings considered in the report very rarely attained the 85 to 100 cubic metres regarded as adequate.

The comfort of a dwelling and the number of conveniences it possesses vary in proportion to its general standard, but it was noted that 54 per cent. of agricultural workers were living in houses with no lobby or entrance hall, an important point in so cold a country as Sweden. A large proportion of these dwellings also were without pantry, cellar, wardrobe or wash-house.

(1) Smallholders paying rent in the form of a certain number of weeks of labour.

Taking into consideration the general classification of workers' households according to the number of points awarded to the dwellings, it was evident that a large number of these fall below the standard considered adequate. Of the households of well-to-do agricultural workers 27 per cent., and of the poor agricultural workers 42 per cent., were living in houses that obtained less than 20 points, *i. e.*, not fulfilling the minima requisite conditions. Not less than 40 per cent. of the workers' households lived in dwellings that obtained from 20 to 24 points, or only a few points above the minimum. Practically no households lived in dwellings obtaining 30 or more points.

The results of the enquiry made by the Social Board are not given here in detail, as its purpose was purely administrative. It is of interest however to indicate certain recommendations which form the conclusions of both reports.

The report of the medical enquiry states that building regulations for the country side appear to be necessary and emphasise the utility of a rationally organised advisory service. It recommends that modern building plans should be available and that a more systematic housing inspection should exist. The Social Board on the other hand without under-estimating the importance of a revision of the existing Health Regulations and other provisions, points out that the practical effect of such regulations cannot exceed the limits of what is economically possible. In order to obtain improvements in rural conditions, it is therefore necessary to supplement legislation by positive assistance, in particular by the granting of credits.

* * *

It should be noted that the question of rural housing, in connection with that of the rural exodus, was discussed at the meeting of the Mixed Advisory Agricultural Committee – the liaison body between the International Institute of Agriculture and the International Labour Office – which was held at Rome from 7 to 9 November 1929, and that it was again considered at the last meeting of the same Committee (Rome, 18 and 19 March 1932), when the Institute was requested to pursue its investigations while reserving the power to select the time considered most opportune for sending out an enquiry relating to rural housing conditions in the different countries.

G. COSTANZO

INSURANCE

Hail Insurance in South Africa.

In the Union of South Africa hail insurance was only carried out during 1931 by a small society at Ficksburg, in the Orange Free State, the Farmers' Hail Insurance Society.

In the course of last year proposals were put forward for the formation of a co-operative insurance society which, according to the intentions of the promoters, was to extend its operations to the whole country. The object of this society was to be the carrying on under a co-operative system of the business of insuring

the agricultural crops of its members against damage caused by hail, fire, pest, and rust and of insuring their livestock against death.

According to the plan drawn up, *bona fide* farmers, co-operative agricultural societies and companies and such associations as are mentioned in the Co-operative Societies Act could become members by application to the Board of Directors.

It may be of interest to note the principal provisions of the Rules of the Farmers' Hail Insurance Society.

The Society has a working capital, an insurance fund and a reserve fund. The working capital is provided by an annual levy of one per cent. upon the amount proposed for insurance by each member, to be paid in cash at the time of making the proposal. The balance of the working capital remaining unexpended on 31 July in each year must be set aside as a reserve fund for payment in compensation for any loss or damage to be suffered by members who have contributed to such working capital and for which loss or damage the insurance fund may prove to be inadequate. The interest or holding of each member in the reserve fund is calculated according to the contribution made by him towards the working capital.

All profits earned by the investments of the Society must be carried to a dividend account and must be distributed annually to the members in proportion to their holding in the reserve fund.

No payment of compensation may be made out of the reserve fund of a sum greater than the value of the holding therein of the member to whom it is paid. A member may decide not to take such compensation; in this case, his holding in the reserve fund remains undiminished. The compensation paid out of the reserve fund in any one year must not exceed two-thirds of the amount of the fund; if necessary, in order to keep the compensation paid within this limit, all claims must be reduced proportionately. No amendment to the provisions relating to the reserve fund may be made until its amounts to a sum of not less than £50,000.

The insurance fund is provided by the contributions of the members. These consist in a levy of not more than two per cent. of the amount proposed for insurance by each member, which must be paid at the time of making the proposal. At the end of every period of insurance, the Directors must return to the members such portion of the insurance fund as may remain after compensation has been paid for losses incurred by the members of the society.

No member has any claim for compensation upon any one or more of the members of the society; compensation is paid only by a division amongst claimants of the insurance fund or of their shares in the reserve fund *pro rata* according to the amounts insured.

The financial year of the society begins on 1 July and ends on 30 June in each year.

Bona fide farmers of European descent may become members of the Society provided that their application for membership is approved by the Board of Directors, who have the right to accept or to refuse such applications without giving reasons.

The Board of Directors, which consists of seven members appointed by the General Meeting, directs and controls the work of the Society. The Directors choose from amongst the members of the Society two or more assessors to appraise damages to the crops of members. The decision of the assessors or the majority of them in regard to the damages is final.

At any time after 1 October in any year, each member wishing to insure his crop, must furnish to the Society a proposal for insurance upon a form approved by the society. Every member is at liberty at any time before loss or damage has occurred to have the value of his crop estimated, at his own expense, by one or more assessors. Such valuation must be lodged with the Board of Directors for the guidance of the assessors in the event of damage occurring. The assessors must pay due regard to pre-valuations.

Whenever the crop of a member suffers damage by hail, he must within three days furnish to the society an estimate of such damage, after which the assessors proceed to appraise it.

No compensation may be paid in excess of the amount insured for and if a member whose crops have been damaged by hail reap any portion of his crop, the value of such portion must be deducted from the amount for which he may have insured.

If in any particular year the total claims exceed the amount of the insurance fund, the fund must be divided amongst the claimants *pro rata* to their claims as appraised by the assessors. In addition they will receive a share of the reserve fund, as indicated above.

In the event of total loss of the crop, one fourth of the value as appraised by the assessors must be deducted as representing the expenses not disbursed by the claimant (expenses of reaping, carriage, threshing and bagging). In the event of partial loss, a proportionate deduction must be made.

On 31 March in each year, or as soon after as possible, the Directors must distribute among claimants such proportion of the insurance fund as they are entitled to upon their appraised claims, after deduction of the undisbursed expenses.

The following are some figures concerning the hail insurance business of the Society during 1929, 1930 and 1931.

Number of members : 176 in 1929 ; 420 in 1930 and 2,300 in 1931.

Levy : in 1929, a cash levy of 1 per cent., amounting to £1,467, used for administration, and a levy of 4 per cent., on promissory notes, of which only about 1 per cent — £1,467 — was used for compensation of losses sustained through hail ; in 1930, a cash levy of 3 per cent., of which 1 per cent. was used for administration, about one per cent. for the compensation of losses and one per cent refunded ; in 1931, a cash levy of 3 per cent., amounting to £31,500, details of the use of which are not yet available.

Area insured : 36,675 morgen (1) in 1929 ; 57,500 morgen in 1930 ; and 200,000 in 1931.

(1) 1 morgen = $2 \frac{1}{9}$ acres.

Compensation paid £1,100 in 1929; £2,100 in 1930. For 1931 figures are not available.

The large increase in membership is a striking proof that the farmers are well satisfied with the working and practical results of this small insurance company.

Up to 1931 no legislative measures had been taken with a view to the development of hail insurance.

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KNICKERBOCKER H. R.: Soviet Trade and World Depression. John Lane, the Bodley Head Limited. London, 1931, p. 288.

[In the January number of this *Bulletin* a note appeared on a previous work of this author: *The Soviet Five Year Plan, its Effects on World Trade*, in which the writer gave his impressions of the economic life of Russia. As a result of his visit to the country he was in a position to report on a marked revival of activity due to the application of the Five Year Plan to the national economy.

In this later publication, KNICKERBOCKER studies the effects of the Five Year Plan on the world economy as well as the influence of the general crisis on the economy of the U. S. S. R. at the present time. As correspondent of two American newspapers, the *New York Evening Post* and the *Philadelphia Public Ledger*, he made rapid journeys for purposes of enquiry and observation through nearly the whole of Europe, stopping at the principal ports and large towns. The results of this enquiry have been published in a series of articles in these two papers and now appear in the form of a volume.

The writer, who has made full use of documentary evidence, notes that in all the countries there is a steady increase in the trade with the U. S. S. R. In this trade as for example for petroleum, the pre-war figures are already exceeded. Owing however to the reduced prices of commodities, especially of agricultural products on the world market, there is a perceptible shrinkage in the value of Russian exports. For the first six months of 1931, while the volume of Russian exports was 110 per cent. of the volume for the same period of 1930, and 175.4 per cent. of the volume for 1929, the value was only 78 per cent. of the corresponding period in 1930 and 90 per cent. of the same period in 1929.

Notwithstanding this shrinkage in values, and in order to carry through the industrialisation of the country and to effect an increasing importation of machines from other countries, the U. S. S. R. is compelled, in spite of the unfavourable situation, to place more of its products on foreign markets. In the foreign trade of Russia imports usually exceed exports. In the first six months of 1931, the value of the imports exceeded that of exports by 151,020,000 gold roubles. Some of the countries trading with the U. S. S. R. have an active trade balance with that country, and this is especially true of the United States. With the object of encouraging the flow of goods towards the U. S. S. R., many of the European States guarantee to their exporters from 70 to 75 per cent. of the total of payments due. On the other hand, at the present time, England is taking 30 per cent. of the total exports from the U. S. S. R., Germany 22 per cent., Latvia takes 7 per cent. for consumption and transit together, Italy 5 per cent., etc.

The writer considers that, generally speaking, Europe does not seem to regard with apprehension "the Red Trade Menace", in view of the fact that commercial transactions are developing on an increasingly large scale, and that these transactions are at least temporarily relieving to some extent the dark days of the world economy.

The book provides a very clear and logical statement of Russian trade and its interlocking with world trade. Occasionally the comments made by the writer are somewhat startling, especially when he alludes to the economic attitude taken up by Europe in regard to the United States of America. The reader will however have no difficulty in distinguishing between what is valuable and what is less so in this volume, and unquestionably it is the former which prevails].

L'Est Européen Agricole. Revue trimestrielle des questions agraires et agricoles internationales. Varsovie, Société de l'Instruction Agricole (Towarzystwo Oświaty rolniczej). Paris, Librairie Jouve et Cie, No. 1, April 1931.

[This review, the first number of which is full of interest for all who recognise the importance of concerted action in the agricultural sphere in this time of world crisis, marks a stage in the movement, which, since the Warsaw Conference in August 1930, has been one of the most characteristic and noteworthy phenomena in the international life of the agricultural world. The predecessor of this journal, the ably edited review *L'agriculture polonaise et des Pays de l'Est Européen*, as stated in the preface to this new publication, "made it its object to follow day by day the stages in the development of the collaboration between the eight agricultural States (Bulgaria, Estonia, Hungary, Latvia, Poland, Rumania, Czechoslovakia, and Yugoslavia) which had met at Warsaw to lay down the bases of common action, intended to remedy the consequences of a crisis affecting seriously their economic life. At the same time the intention was to collect all information relating to agricultural and agrarian subjects in Poland". *L'Est Européen Agricole* which succeeds it proposes to present in the first place a full documentation on the different operations and enquiries undertaken jointly by the agrarian States of Central and Eastern Europe with a view to remedying the consequences of the world crisis. On the other hand, *L'Est Européen Agricole* will endeavour to do for each of the States of the "Bloc Agricole" what *L'Agriculture Polonaise et des Pays de l'Est Européen* had effected in respect of Poland. But *L'Est Européen Agricole* does not intend to be merely an organ of documentation and information. It will make a study, with the help of highly qualified specialists, of questions of organisation of farm undertakings, foreign trade policy, relations between industry and agriculture in the different agrarian States and will make a dispassionate review of theories and facts. *L'Est Européen Agricole* will aim, in addition, at forming by degrees a kind of laboratory where from the results of practical experiment and from abstract theories there will be disengaged the information required for bringing about the agricultural and agrarian organisation of Central and Eastern Europe.

This new publication in the interests of agriculture merits every success].

SALGADO F. Ribeiro : Le Brésil et les Colonies Portugaises. (Aperçu de leurs ressources économiques, par rapport à leur commerce d'exportation). Lisbonne, 1930, pp. 335.

[This is essentially a handbook for consultation and undoubtedly achieves the practical purpose intended by the writer, as the information supplied on the economic and commercial position of the countries dealt with is very full and the subject matter is well arranged and co-ordinated. In regard to Brazil, it will be noted that the enquiry relates almost exclusively to agricultural production, the branch of economic activities which, as is well known, makes the largest contribution in the export trade of the country. The writer remarks that the economists of the country calculate the production of vegetable origin at eight millions of *contos* yearly, the production of animal origin at 400,000 *contos*, and the production of mineral origin at 70,000 *contos*.

Hence a sum of about 8,500,000 *contos* may be taken as representing the value of all these products. Others however consider that this figure may be safely raised to 9,000,000 *contos*. The Year Book of the Ministry of Agriculture values the industrial activity of Brazil, in 1926, at a total of 7,200,000 *contos*, which the economists state to be an under estimate. In this way a total figure of nearly 17 million *contos* may be reached. M. Ribero Salgado passes on to the study of the economic resources of the Portuguese colonies, adopting a system as much as possible identical with that followed for Brazil, keeping steadily in view the possibilities of a larger development of the export trade].

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MONTHLY BULLETIN

OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

MARKETING OF AGRICULTURAL PRODUCE

World Production of and World Trade in Table Grapes (*Continued*).

II. — Asiatic Countries situated on the Mediterranean.

Vine cultivation on the eastern shores of the Mediterranean has a special character from the fact that in these regions, owing to the predominance of a Mahometan population, wine production fell into the background, so that the main importance attaches to the production of dried vine fruits. In connection with this cultivation that of table grapes was undertaken and is now carried on with increasing success. Up to the post war years the production mainly served local markets. In Cyprus with its prevailingly Christian population, and in Palestine, where during the nineties Jewish immigrants frequently took up vine growing in the newly founded colonies, production was on a larger scale. In both these areas table grape production has made great strides in the last ten years under pressure of the crisis in wine sales which also affected these countries. Modern vineyards, growing improved kinds of table grapes, have made an appearance in Palestine, more especially on the plain of Jezreel, where grapes ripen very early. In Turkey on the other hand, where the wine crisis does not exist, beginnings only in the direction of improved planting are to be observed.

Exports of grapes from Cyprus and Palestine are mainly directed to Egypt. In the last few years attempts have been made, with the support of the Empire Marketing Board, to export grapes from both these countries to England, but these endeavours, although not encountering any serious technical difficulties, have up to the present had no tangible results. There are no special statistics relating to the grape export from Cyprus. The table grape export from Cyprus has trebled since 1924, in which year it was, as in the pre-war years, about 5000 quintals. The following quantities were exported :

1928	21,397 quintals
1929	16,659 quintals
1930	14,844 quintals

Exports from Palestine are much larger than formerly, although the home consumption has much increased in the last few years. The export trade of Palestine and of Turkey may be seen from the following figures:

Export of Table Grapes from Palestine.

Year	In 100 £ P.	In 100 quintals		
		Total	Including export to	
			Egypt	Syria
1928	17	25	24	1
1929	42	63	63	0
1930	52	37	—	—

Import of Table Grapes into Palestine.

Year	In 100 £ P	In 100 quintals	
		Total	Including imports from Syria
1928	27	26	26
1929	19	20	20
1930	40	32	...

Export of Table Grapes from Turkey.

Year	In 1000 £ T	In 100 quintals				
		Total	Including exports to			
			Greece	U. S. S. R.	Egypt	Syria
1928	19	32	11	13	5	2
1929	8	15	3	6	—	5
1930	23	38	23	1	—	11

V. — The Overseas Countries.

1. — *United States of America.*

Table grape cultivation only became an important factor after 1900 although vine cultivation has been carried on for some hundreds of years. So long as production did not keep pace with demand, there had to be a somewhat large import. Subsequently extension of the cultivation followed very rapidly although

growing of grapes under glass has not been successfully developed in the United States as compared with Europe. At the present time not only are the requirements of the United States covered by the home production but there is a considerable surplus which has to be exported. Both wine and table grapes are now sent to nearly all parts of the States. It is however only in California, the States on the Great Lakes and — to a less extent — some States of the Middle West that the trade has an importance beyond the covering of requirements of the growers themselves or those of the local markets.

Both in California and in the Lake States the cultivation of table grapes began as a subsidiary branch of wine grape growing; and up to about the years 1860 to 1870 the development of the two branches followed similar lines. Since then the table grape cultivation has become increasingly independent, first in the Eastern States where the neighbourhood of large towns ensured a steady market for fresh grapes. This change of direction received further impetus from the selection and diffusion of a new table variety, known as "Concord," and from successful crossings of American with European varieties. The extension of table grape production in the years 1870-1890 involved an extraordinary development of vine cultivation in these States, while vine growing in California was developed rather through the extension of the growing of wine grapes and raisins. Although in California after the introduction of first class French varieties the table grape production very soon reached a high level as regards quality, yet in consequence of the absence of adequate transport and handling organisation only 40,000 tons of all kinds of grapes could be placed round about 1890 on the market, while the other States, and in particular the Great Lake regions, marketed more than 220,000 tons. It should be remembered that the whole grape-growing area of California was at that time already somewhat larger than that of the other States taken together. In the course of the next 30 years there has been no striking development of vine growing in the Eastern States. The grape production remained with some fluctuations at about the height reached in 1890. In the same space of time the Californian cultivation underwent expansion at an increased rate, the increase being largely and especially after 1900 due to an augmented production of table grapes. With the amplification of the transcontinental railway system and the additional utilisation of refrigerating trucks it became much easier to consign Californian grapes to the eastern markets. An improvement in the quality and in the methods of packing and display of table grapes, due in the first place to pressure from the co-operative societies but steadily continued, led to the securing of a wide market at the cost of the "Eastern grapes," the quality of which did not in the same measure correspond to the more exacting demands of the market. In any case the table grape production in the Eastern States for some years after the turn of the century had shown signs of retrogression. The difficulties of marketing increased, from the competition of the Californian grapes, so seriously that a growing proportion of the production found its way into the newer branches of utilisation, especially into the grape juice factories. This development was accompanied by a decline in regard to quality, as quality and packing were no longer decisive factors when the grapes were grown and prepared for industrial uses.

In California table grapes are mainly grown in the warmer regions of the San Joaquin and Sacramento Valleys and in the South of the State. Some two thirds of the table grape area lies in the counties of San Joaquin, Fresno and Tulare. In the Eastern States the production is chiefly carried on in the Chautauqua and Finger Lake area of New York State, in the Benton Harbour and Paw-Paw districts of South West Michigan and in Erie County, Pennsylvania. Californian production is based on the European kinds of grape, among which special mention may be made of the varieties, Malaga, Flame Tokay and Emperor, which cover 90 per cent. of the whole table grape plantations. In the Eastern States the cultivation is of grapes of the indigenous *Labrusca* type, of which the best known kinds are Concord, Niagara and Catawba.

In the following table are shown, for 1900-1919, under the first heading, the development of table grape production in California, under the second heading, that of the export of table grapes, *i. e.*, that conveyed by rail beyond the limits of the State. The figures show fairly completely the total export from this State, as in consequence of the great distances no other means of transport is much in use.

The internal trade of California could not naturally be shown in this connection.

Production of Table Grapes in California.

Year	1000 short tons		Including exports 1000 truck loads (1)
1900	12	approximate	0.8
1905	24		1.6
1908	57		3.8
1910	74		4.9
1912	95		6.3
1914	132	approximate	9
1916	136	»	11
1918	173	»	17
1919	200	»	20

By 1920 the leading position of Californian table grapes was undisputed. The proportion of the Californian production to the whole of the United States was in 1919 calculated at 65 per cent. At the present time the proportion may be taken as about 90 per cent.

A certain obscurity surrounds the table grape trade during the last ten years. It is well known that the prohibition legislation has not interfered with the preparation of wine in the household for family consumption. This opportunity is made use of by certain enterprises for the illegal manufacture of alcohol.

(1) A truck holds 18,000 to 25,000 pounds, or about 10 short tons. According to returns of the railroad statistics the figures refer in general to grapes which are consigned in the fresh state; in practice accordingly they refer almost exclusively to table grapes, as wine and raisin grapes undergo previous preparation on the spot in California.

Since the coming into force of the prohibition legislation in January 1920, immense quantities of wine grapes have been packed in cases and exported from the wine-growing districts, but only a part of this export is formed of grapes for table use. The exports of fresh grapes from California have risen rapidly since 1920.

Export of Fresh Grapes from California since 1920 (in 1000 truck loads).

Year		Year	
1920	29	1926	64
1921	33	1927	76
1922	44	1928	73
1923	55	1929	59
1924	58	1930	63
1925	76		

According to information received from the Federal State Inspection Service and the California Vineyardists' Association, the quantities of table grapes proper exported from California were, in 1000 truck-loads:

Year		Year	
1925	15.5	1928	23.0
1926	12.3	1929	18.3
1927	21.3		

According to these returns the table grape exports have not greatly increased since 1916-18. Production of course doubled itself after 1919. A proportion of the grapes, however, the exact ratio of which varies with the crop outturn, is no longer harvested, as the Californian growers have adopted a measure of crop restriction with a view to keeping prices up.

Production of Table Grapes in California (in 1000 short tons).

Years		Including quantities not gathered
1920	166	—
1921	163	—
1922	213	—
1923	312	—
1924	325	—
1925	477	100
1926	398	15
1927	490	142
1928	478	75
1929	312	—
1930	418	194

As consequence of the extension of production the first sign of price weakening appeared during the season 1922. These became increasingly pronounced, and prices in 1925 had dropped to about one fourth of those of 1921.

Farm Price of Californian Table Grapes in \$ per ton.

Years	\$	Years	\$
1921	80	1926	25
1922	60	1927	26
1923	40	1928	26
1924	40	1929	35
1925	20	1930	21

The restriction of sales which began in 1925 would have had to be more comprehensive than it actually was, if the price level, already very low in 1925 was to be maintained. The American table grape trade had however meanwhile penetrated to the foreign markets and the home market was thereby perceptibly relieved. This result gained emphasis, in that at the same time in consequence of the prohibition of import of Spanish grapes for the table the total import of the United States in table grapes dropped to about 10 to 15 per cent. of the former quantity. By means of sales restrictions, throttling of the import and forcing of the export, the table grape market was successfully stabilised, and in fact the price development took a slight upward turn, to be again counteracted in 1930 in consequence of the economic crisis.

Since 1925 the United States has been an exporting country for table grapes.

Foreign Trade of the United States in Table Grapes (in 1000 pounds).

Fiscal Year	Import	Export	Fiscal Year	Import	Export
1907 (1)	31,296	0	1919	16,773	0
1908	53,857	0	1920	12,810	0
1909	29,005	0	1921	24,039	0
1910	32,907	0	1922	18,796	0
1911	35,796	0	1923	32,651	14,022
1912	48,225	0	1924	20,029	20,257
1913	27,379	0	1925	3,216	20,302
1914	32,157	0	1926	2,830	24,268
1915	31,910	0	1927	2,021	30,791
1916	15,037	0	1928	3,471	38,819
1917	33,803	0	1929	3,405	55,638
1918	13,414	0			

(1) Up to 1907 the imports of table grapes were not shown separately.

Before the war 95 per cent. of the imports came from Spain; apart from these small quantities of Belgian glasshouse grapes came in. The Belgian imports somewhat increased in the post-war years. Imports of Argentine table grapes now also arrive and show a tendency to increase.

Import of Table Grapes into the United States.

Year	In \$ 1000	In 100 cubic feet								
		Total	Including imports from							
			Belgium	Germany	Great Britain	Netherlands	Spain	Argentina	Brazil	Chile
Average 1911-13. . .	1,804	15,406	193	20	55	9	15,076	3	—	—
1928	318	1,381	259	—	2	—	—	995	—	117
1929	301	1,422	394	—	—	—	—	930	10	87
1930	944	2,224	243	—	—	—	—	1,938	11	28

The United States export is, to the extent of nearly two thirds, taken by Canada. Importing countries of second rank are Mexico, the Philippines and Cuba. The increasing importance of the European markets is clear from the rising imports of Great Britain.

The table grapes exported from the United States are mainly Californian, and the variety Emperor is of special importance.

Export of Table Grapes from the United States.

Year	In \$ 1000	Total	In 100 lbs.							
			Including export to							
			Great Britain	British Malaya	Ceylon	China	Hong-kong	Java	Philippine Is.	Canada
1928	2505	5361	54	36	13	23	45	15	153	3920
1929	2463	4731	14	46	18	22	52	23	167	3381
1930	2121	4900	210	28	25	12	41	24	187	3323

Year	In 100 lbs.								
	Including export to								
	Colombia	Costa Rica	Cuba	Dominican Rep.	Guatemala	Mexico	Panama	Salvador	Venezuela
1928	19	21	529	10	18	334	23	17	22
1929	23	12	382	14	19	308	30	23	40
1930	24	10	357	12	12	340	29	13	54

8. — *Argentina.*

Vine growing in Argentina for climatic reasons has mainly developed in the semiarid provinces of Mendoza and San Juan at the eastern slopes of the Andes. In consequence of the unfavourable market conditions the cultivation was in the first place confined to wine grapes. It was not till the post-war period that attention was given to the production of table grapes, after the railway had introduced refrigerating trucks and freight reductions with the effect of stimulating the vine growers to a partial swing over to table grape growing. By this time the towns on the eastern side were regular purchasers of fresh grapes, and in addition an export began to develop. Since consignments arrive on the market in January and finish in May, the grapes come upon the North American and European markets at a time of the year when comparatively high prices can be obtained. In particular the North American market which at that time is not supplied with other grapes shows an increasing absorption capacity.

Data as to distribution of the exports to the separate countries were available only for 1927. It appears from a comparison of the statistics of the importing countries, that in 1930 about 20,000 quintals, or more than a third of the total export from Argentina, was taken by the United States, about 9000 quintals went to Great Britain and about 2000 to Germany. The remainder of about 20,000 quintals would appear to have been exported mainly to Brazil.

Export of Table Grapes from Argentina.

Year	In 1000 gold pesos	In 100 quintals				
		Total	Including exports to			
			Great Britain	Brazil	Uruguay	United States
1927	148	176	44	61	5	63
1928	419	405	—	—	—	—
1929	299	408	—	—	—	—
1930	316	542	—	—	—	—

Table grape imports into Argentina which before the war mainly came from Spain have now greatly declined.

Import of Table Grapes into Argentina.

Year	In 1000 gold pesos	In 100 quintals	
		Total	Including imports from Spain
Average 1911-13	21	37	30
1928	11	11	—
1929	18	17	—
1930	7	7	—

3. — *Union of South Africa.*

Vine growing was introduced into Cape Colony in the middle of the 17th century soon after the arrival of the first larger bands of European settlers. The Huguenots from Southern France were in particular the pioneers of this cultivation, which is still mainly to be found in the districts settled by them, namely in the Paarl and Stellenbosch districts. Vine growing has not been extended beyond the boundaries of the Cape Province which was the province originally settled. Until about 20 years ago the cultivation was based almost exclusively on production of wine, for which a market was readily found, apart from the up country consumption which was not very large, in the requirements of the numerous vessels that put in at Cape Town for supplies or cargoes. Table grape cultivation had local importance only until satisfactory transport was ensured by means of the establishment of a regular service of steamers equipped with cool chambers.

Up to the present the South African export of table grapes is mainly directed to the British markets, where they command good prices as arriving out of the regular grape season. The crisis in regard to sale of wines which is also noticeable in South Africa has given an impulse to the development of table grape cultivation. In 1925, the year of the latest census, out of about 100 million vines about three million were devoted to table grapes. There is a somewhat large number of kinds: White and Red Hannepot, Muscat, Gros Colman, Ohanez and others. The increase in the exports during the past years is clearly shown from the following figures, although for the years 1911-13 only figures for values are available. The fruit is packed in boxes of 10 lbs. each. The sides of the boxes are lined with cottonwool and tissue paper and layers of the same materials are also placed between the bunches.

Export of Table Grapes from the Union of South Africa.

Year	In £ 100	In 100 boxes		
		Total	Including export to	
			Great Britain	Portuguese East Africa
Average 1911-13.	146	—	—	—
1928.	1,534	4,778	4,581	101
1929.	1,509	5,167	4,982	119
1930.	1,653	5,566	5,319	151

4. — *Australia.*

Vines are grown for wine, for dried vine fruits and for table grape production. Out of about 43,000 hectares under vines about 3000 hectares are devoted to the production of table grapes. Vine growing has been especially extended since the world war, as at the time of the soldier settlements the districts were preferred

* *Ec. 12 Engl.*

that were suitable for fruit and vine-growing. During the season 1927-28 the production of table grapes amounted to 12,285 short tons, distributed as follows:

	Short tons
New South Wales	4,250
Victoria	3,338
Queensland	1,474
South Australia	581
Western Australia	2,642

The grapes are for the most part consumed in Australia itself, and for this reason no special heading is so far given to table grapes in the Australian export statistics. During the last few years however some quantities of Australian table grapes reached England, as appears from the import statistics, the average for the years 1928 to 1930 being about 2000 quintals.

Prof. Dr. K. RITTER and Dr. M. GUTTFELD.

(To be concluded).

INSURANCE

Hail Insurance in Austria.

At the present time the following societies deal with hail insurance in Austria:

(a) National:

Burgenländische Versicherungsanstalt, Eisenstadt.

"Donau" Allgemeine Versicherungsaktiengesellschaft, Vienna.

"Phönix" Allgemeine Versicherungsaktiengesellschaft, Vienna.

Steirer Versicherungsaktiengesellschaft, Gratz.

Versicherungsanstalt der Österreichischen Bundesländer, Vienna.

"Wechselseitige Brandschaden" und "Janus" Versicherungsanstalt auf Gegenseitigkeit, Vienna.

(b) Foreign:

Assicurazioni Generali, Trieste.

Erste Ungarische Allgemeine Assekuranz-Gesellschaft, Budapest.

Foncière, Allgemeine Versicherungsanstalt, Budapest.

Riunione Adriatica di Sicurtà, Trieste.

Vaterländische Allgemeine Versicherungs-Gesellschaft, Budapest.

The limited liability company "Der Anker," which up to 1931 also undertook hail insurance has suspended activities in this branch.

The first ten companies do hail insurance business on the basis of a common risk (*auf gemeinsame Gefahr*) in conformity with an agreement binding the companies and laying down common conditions of insurance, common scales of premiums and a common valuation of the damage produced by hail. The

executive body which carries out the functions indicated is the *Hagelschaden-Erhebungsbureau*, called more simply *Hagelbureau*.

This office owes its establishment, which took place in 1890, in the main to the fact that as long as each insurance company based the determination of the damages produced by hail on the opinions of its experts, there were differences in the valuations and this was unsatisfactory for the farmers.

Moreover the estimate of the risks according to the districts was not very exact on account of the lack of sufficiently comprehensive statistics, each society having at its disposal only its own figures. With the formation of the *Hagelbureau* these difficulties disappeared.

The valuations of losses have since then been carried out in common, and only by old farmers fully competent in the matter and very often checked by well-known experts.

The travelling expenses of the experts have been greatly reduced since a single expert can now do the work which formerly was carried out by several experts each sent by a different company.

The statistics and the observations on hailstorms are now combined into a common statistic ; it follows that the estimate of the risks is much more accurate than formerly and that it is more easy to adapt the scales of premiums to the actual extent of the risk.

As to re-insurance, 50 per cent. of the business is undertaken jointly by the companies indicated, that is, compensation for half the losses is paid by the affiliated societies jointly while the other half is paid by each company separately in proportion to the extent to which it has been affected by the losses incurred.

During 1890 several *Hagelbureaux* were established, with headquarters at Vienna, Prague, Budapest and Lemberg.

After the war, as a result of the political changes that took place, the field of action of the various *Hagelbureaux* was adapted to the new situation and that of Vienna, which previously included in its sphere of operations Austria, Moravia and Silesia now confines its operations to the territory of the Austrian Republic.

The *Versicherungsanstalt der österreichischen Bundesländer*, which does not belong to the group of which we have just spoken, carries on hail insurance business independently.

Although organised in the form of a limited liability company, this company, which was established in 1922, is included amongst semi-official companies.

Amongst the administrative bodies of the said *Versicherungsanstalt* there is a Council of Control (*Länderkuratorium*) composed of one representative for each of the Governments of Lower Austria, Upper Austria, Salzburg, Tyrol, Vorarlberg, Carinthia, Styria and Burgenland and two for the town of Vienna. This Council has the following duties :—

(a) To take decisions on all matters for which, according to the rules of the company, the resolutions of the General Meeting and of the Committee of management require to be confirmed by the said Council of Control, namely, amendments of the rules or additions to them, increase or decrease of share-capital, methods to be adopted in the issue of new shares, conclusion of agree-

ments with another institution whereby current insurance business passes entirely or in part from one company to the other, the liquidation of the company including liquidation in the event of amalgamation with another company, as well as the methods to be adopted in the liquidation and the manner in which the business of the company must be settled and in which the engagements entered into by the company in relation to the insured persons must be guaranteed, authorisation of the shareholders to transfer their shares, nomination and dismissal of the managing staff and the fixing of their salaries, proposals of the Management Committee and the General Meeting regarding the distribution of profits on the life insurance business.

(b) To agree to the resolutions of the General Meeting and of the Management Committee in all matters resulting from the relations which exist between the incorporated insurance institutions and the former administration of the regions concerned and also with the administrations of the States represented (position of officials, etc.) ;

(c) Management of the special fund (art. 44 of the rules) as well as decisions concerning its utilisation ;

(d) to send three members and a substitute member to the Inspection Committee with a view to participation in the supervision of all branches of the company's work ;

(e) As the rules expressly state, the Curatorium must in its work have regard mainly to the interests of the whole body of insured persons and has the right to present to the Council and to the General Meeting proposals for this purpose.

The hail insurance which was formerly carried out by the *Niederösterreichische Landesversicherungsanstalt* has been taken over by the *Versicherungsanstalt der österreichischen Bundesländer* which has extended its work to the whole territory of Austria, while the business of the first society was limited to the territory of Lower Austria.

It may be useful at this point to give some particulars regarding the *Niederösterreichische Landesversicherungsanstalt* which played a very important part in the matter of insurance in Austria but was obliged to give up business, mainly on account of the consequences of the monetary inflation in Austria. This institution was established in 1899 and had the character of a semi-official institution. The supreme direction and the management of the Institute, as well as the control over its work as a whole, were in the hands of the Diet of Lower Austria and were exercised through its executive body, the Provincial Committee. Moreover, the Diet nominated each year from its own members two "censors," who gave their services gratuitously. The Institute was based on the principle of mutuality, that is to say, the losses incurred had to be made good by the members and the profits realised were distributed amongst them ; every insured person was regarded as a member of the Institute. Lower Austria guaranteed to the Institute an annual subsidy of 80,000 crowns and, in addition, an annual credit without interest of 200,000 crowns to meet a possible deficit in the event that the reserve fund should prove inadequate. The Institute did not pay any compensation for damage done by hail not exceeding 6 per cent. of the sum assured.

They also laid down certain percentages of which account was not taken in calculating the sum assured. These percentages began at 2 per cent. for damages ranging from 7 to 9 per cent. of the sum assured and increased progressively up to 11 per cent. for damages between 90 and 100 per cent. of the sum assured. The work of this Institute being carried on in the interest of agriculture it succeeded in the course of a few years in having in its hands up to 65 per cent. of the hail insurance business of Lower Austria. But from 1906 the business began to decline and finally the Institute was obliged to give up business.

Since 1922 this Institute has been replaced by the *Versicherungsanstalt der österreichischen Bundesländer*.

In 1927, in conformity with a decision of the General Meeting, this latter Institution was amalgamated with the re-insurance company "Securitas".

As we have said, the *Versicherungsanstalt* does not belong to the group of other companies carrying on hail insurance business. Nevertheless it applies the same scale of premiums as the societies belonging to that group. In addition, being desirous of establishing hail insurance on a wider basis in order to secure a more favourable distribution of risks and consequently a diminution in the scale of premiums, this Institute, in agreement with the other companies carrying on hail insurance business has taken joint action with them through the medium of a free association or understanding which is known as *Arbeitsgemeinschaft der österreichischen Hagelversicherungsanstalten*.

This understanding has neither rules nor special regulations, but discusses and takes decisions whenever the business and the circumstances require it. While leaving untouched the independence of the various companies this free association aims exclusively at combining the efforts of all those engaged in insurance business with a view to removing all obstacles and promoting conditions favourable to insurance. One of the principal functions of this organisation has been to maintain contact with the administrative authorities and the vocational organisations with a view to removing every cause which might prevent hail-insurance or render it difficult and to developing propagandist work amongst the farmers.

The first step taken by this organisation was the formation of an Office for Consultation on Hail Insurance at the Agricultural Fair held last spring. It would seem that this initiative was successful.

Another initiative, consisting in propagandist work carried on by means of posters, was supported by the public authorities. In fact a decree of the Federal Chancellor's Office was issued, addressed to the federated governments. The Government of Lower Austria which published this decree in its *Official Gazette* of 2 May 1932 added the remark that it was, in fact, necessary to enlighten the farmers in the matter in question and to draw their attention to the fact that, the available means being limited, they must not, in the event of damages by hail, count upon any considerable financial aid from the Government.

There are in Austria special legislative provisions regarding the insurance contract and the supervision to be exercised over the insurance companies. The insurance contract is regulated by the Law of 23 December 1917 (*Rgbl.* 230, 28 December 1917), which in its form and contents was based on the

Swiss Law of 2 April 1908 and the German Law of 30 May 1908. This Law is divided into five parts. The first part contains general provisions concerning all branches of insurance. The second part relates to insurance against damage and is divided into six chapters (general provisions, fire insurance, hail insurance, live stock insurance, insurance against transport risks, employers' liability insurance). The third part contains provisions on life insurance. The fourth part relates to insurance against accidents and the fifth part contains transitory provisions. The Law does not apply to the contracts made by the mutual aid societies nor to semi-official insurance relations, nor to certain contracts concluded with insurance institutions in the field of insurance replacing employees' pensions. Nor does the Law apply to marine insurance, nor to re-insurance, nor to lottery insurance.

The part of the Law relating to hail insurance begins with the declaration that the insurer against damage caused by hail answers for damage which hailstorms cause to the products of the soil. By this restriction is understood that the damage caused by hail to other objects will be dealt with according to the general prescriptions laid down for insurance against damage in general. A second provision states that the compensation paid by the insurer must be measured relatively to the profit which the products insured would have given if they had not been injured by hail.

Another provision (Art. 90) states that the obligation to notify the damage must be considered to be fulfilled if the notification is despatched within four days from the moment when the damage occurred.

Article 92 of the Law lays down that the payment of compensation may be postponed until 31 October of the current year. If, however, at this date the harvest has not yet taken place, the payment must be made immediately after the crop has been gathered in.

Under Article 93, if the insurer denounces the hail-insurance contract in conformity with the provisions contained in article 61 of the Law, the denunciation does not take effect until after the end of the insurance period during which the hailstorm took place.

It is provided in Art. 94 that in case of the transfer of a property on which there are insured products, the insurer can only denounce the insurance in relation to the purchaser or beneficiary at the end of the insurance period during which he has learnt of the transfer of the property. The term laid down by Article 65, paragraph 1 (that is, a period of one month) is not applicable to this case. If any person acquires the right of appropriating the insured products of the soil by a right of usufruct, by lease or by any similar legal relation, the rules relative to the transfer of the property will be applied.

In Article 95 it is laid down that the insurer cannot by any agreement he may make set aside the provisions contained in Article 91 to 93 in favour of the insured person nor those contained in Article 94 in favour of the purchaser or holder in usufruct. The second paragraph of Article 95 lays down that the term contemplated in Article 2, paragraph 1, in favour of the insured person may be reduced, but not to less than eight days. Agreements are allowed which set aside the provisions of Article 57 regarding compensation for the cost of salvage.

In regard to the supervision of the State over insurance companies, it is the Order of the Federal Ministry of the Interior and of Instruction dated 7 March 1921 (*Rgbl.* 141, of 10 March 1921) which regulates the matter (1). Besides the principle contained in the Austrian Constitution, which lays down that federal supervision is a matter that interests the whole Confederation, there had been several measures issued by the public authorities on the question. On 2 November 1852 a law on associations had subjected insurance institutions to the control of the public administration in the same way as other societies. On the basis of this law and of orders subsequently published in consequence of the development of insurance, the administrative action of the Austrian Government did not develop as an independent branch of the administration. In fact, both the Ministerial Decree of 18 August 1880 (*Rgbl.* 110) published under the title of "Regulation of Insurance" (*Versicherungsregulativ*) which established at the Ministry of the Interior a Technical Office to which supervision of insurance companies was entrusted, and the Ministerial Decree of 5 May 1896 (*Rgbl.* 31) making amendments, suggested by the results of an inquiry, to the insurance regulations of 1880, were, in large part, merely regulations for carrying out the Law of 1852. The new insurance regulations issued on 7 March 1921 by the Ministry of the Interior and of Instruction in agreement with the other Ministries interested, have a much more independent character.

The nature of the State supervision as far as Austria is concerned is determined by Article 37 paragraphs 2 and 3 of the Insurance Regulations, which lay down that the State supervision must have regard in general both to the exact observance of the provisions of the Government and of the bases for the organisation of insurance companies and to all circumstances upon which the future carrying out of the obligations of insurance companies are conditional. The principal subjects of the supervision of the State are consequently the exact determination of the reserves, the premiums, the most advantageous investment of the capital, the precise, complete and clear statement of everything relating to the social capital and to the business of insurance companies, particularly in the drawing up of balance sheets and financial statements. The supervising authority has the right to take such measures, either general or affecting only certain institutions, as may be necessary to bring the work of the companies in question into harmony with the provisions of the Government and with the bases laid down for the organisation of insurance companies, or to remove certain evils which might be prejudicial to the interests of the insured persons and to the public confidence in insurance. On the other hand the supervising authority is called upon to support the insurance institutions by helping them with its advice and by its action.

The Austrian system of supervision is a system of Government authorisation and of control of the business. It differs from the system which subjects the exercise of this branch of economic activity to certain Government dispositions of the nature of regulations. In the latter case the supervision of the State is

(1) LEIMDÖRFER: Einführung in System und Grundsätze des österreichischen Versicherungsrechtes. *Die Versicherung*, 1 May 1930, p. 352.

merely formal, that is, it confines itself to seeing that the legislative prescriptions are observed.

With a view to reducing the insurance premium and thereby stimulating hail insurance, the Government of Lower Austria had, from 1899 to 1922, granted an annual contribution of 80,000 crowns. From 1922 onwards, this part of Austria no longer granted contributions directly assigned to the development of hail insurance, but, on the occurrence of hailstorms, it granted special contributions to the farmers who had suffered damage. These contributions amounted to 5,400 schillings in 1927 ; 9,140.50 schillings in 1928 ; 9,976.60 schillings in 1929, and 68,665 schillings in 1930.

On the other hand the Federal Government of Austria had granted fairly large contributions in order to assist farmers who had suffered from this calamity (1).

Hail insurance is not very widely diffused in Austria if one thinks of the extent and severity of the hailstorms, particularly in certain parts of the country. The following table shows the number of farms in Austria according to statistics relating to 14 June 1930 and the number of hail-insurance policies in 1931 (2).

STATES	Farms	Hail insurance policies	Percentage
Vienna and Lower Austria	146,871	7,836	5.34
Upper Austria	80,215	2,532	3.16
Burgenland	43,477	2,293	5.27
Salzburg	13,999	364	2.60
Styria	77,393	567	0.73
Carinthia	30,663	90	0.29
Tyrol and Vorarlberg	40,484	31	0.06
TOTALS	433,302	13,713	3.17

As may be seen there is considerable disproportion between the number of farms and the number of hail insurance policies. The table also shows that in the States situated in the plain — Vienna and Lower Austria, Upper Austria and Burgenland — the percentage of insurance policies averages 4.68 per cent., whilst the percentage of policies in the mountainous States — Salzburg, Styria, Carinthia, Tyrol and Vorarlberg — does not exceed an average of 0.63 per cent.

Comparing the total sums assured in 1931, which amounted to 22,047,250 schillings, and the total value of the insurable agricultural products — 728,655,000 schillings — it results that only 3.03 per cent. of the total value was insured against hail.

(1) *Die Landwirtschaft*, July-August 1931, p. 180.

(2) "ANZ": *Eiliger Sonderdienst "Agrarische Nachrichten Zentrale"*, Vienna, 10 March 1932, and WEISS: *Die Hagelversicherung in Oesterreich*, *Die Versicherung*, 12 May 1932.

We give another table showing the very limited diffusion of hail insurance in Austria (1). The *Hagelbureau* of the hail pool drew up for 1929 a table showing the relation between the value of the principal agricultural products and the value of the same products insured against hail.

The volume of the crop is taken from the Statistical Yearbook of the Austrian Republic, and its value is calculated by taking the maximum prices fixed by the insurance companies for the year 1929.

STATES	Total of the products considered (average per hectare)	Value of products insured (average per hectare)	Percentage of products insured in relation to the products considered
	Schillings		%
Vienna and Lower Austria	818	56	6.86
Upper Austria	678	37	5.50
Burgenland	850	79	9.32
Salzburg	480	30	6.35
Styria	808	8	0.88
Carinthia	620	6	0.98
Tyrol and Vorarlberg	731	4	0.52
TOTALS . .	775	45	5.84

By reason largely of the crisis and particularly of the fall in the price of agricultural products a considerable decline has taken place in the extent, already somewhat limited, of hail insurance in Austria. The following table shows this very clearly :

YEAR	Number of policies	Values assured	Premiums received
		Schillings	
1929	24,156	52,574,414	1,885,322
1930	17,781	33,354,380	1,590,216
1931	13,713	22,047,250	899,421

The Bureau of the insurance companies combined in a hail insurance pool completed its 40th year of activity in 1929 and on this occasion compiled some very interesting tables of statistics concerning the business both of the companies forming the Pool and of the *Versicherungsanstalt der österreichischen Bundesländer* during the period of 57 years from 1873 to 1929 (2).

(1) REIF: 57 Jahre Oesterreichische Hagelstatistik, in *Zeitschrift für die gesamte Versicherungswissenschaft*, p. 217.

(2) REIF, *loc. cit.*

An estimate of the results contained in these tables presents somewhat marked difficulties on account principally of the changes in the bases on which the figures in the table rest. For example, the data concerning the *Versicherungsanstalt* appear in the table from 1899 onwards, for only since then has this insti-

TABLE I. — *Hail Insurance in Austria from 1873 to 1929.*

YEARS	Number of insurance policies	Value assured	Net premiums (com- missions not included)	Com- pensation	Profit (+) loss (—) expenses of management, estimation of damages, commissions etc. not included	Net premiums as percen- tage of assured values	Com- pensation as percen- tage of assured values
			(crowns)			%	%
1873 to 1882 . .	—	112,165,004	1,122,032	947,658	+	174,374	1.00
1883 to 1889 . .	—	137,458,292	1,667,136	1,605,030	+	62,106	1.21
1890	11,432	20,148,494	274,283	267,766	+	6,517	1.36
1891	5,935	11,990,532	184,992	149,710	+	35,212	1.54
1892	6,924	13,605,396	211,110	142,766	+	68,344	1.55
1893	5,137	10,084,520	162,602	81,120	+	81,402	1.61
1894	7,064	12,762,888	201,702	142,396	+	59,306	1.58
1895	6,206	11,726,344	182,982	141,774	+	41,208	1.56
1896	7,769	12,884,300	202,732	76,047	+	126,685	1.57
1897	7,049	12,428,006	188,967	180,702	+	8,265	1.52
1898	16,604	27,928,323	418,549	508,642	—	90,093	1.50
1899	19,010	29,428,438	498,623	145,743	+	352,880	1.69
1900	14,212	23,932,473	390,728	380,832	+	9,896	1.63
1901	19,458	31,966,791	510,551	348,770	+	161,781	1.59
1902	18,870	32,958,648	504,574	527,232	—	22,658	1.53
1903	20,861	33,239,087	521,806	390,199	+	131,607	1.57
1904	23,404	37,064,688	598,943	218,486	+	380,457	1.62
1905	22,351	36,541,275	565,703	723,138	—	157,435	1.55
1906	28,340	43,619,878	718,148	715,301	+	2,847	1.65
1907	23,104	37,627,022	637,838	727,367	—	89,529	1.69
1908	29,995	48,573,245	925,891	1,043,452	—	117,561	1.91
1909	27,351	47,910,710	863,728	1,756,834	—	893,106	1.80
1910	33,047	53,737,534	1,073,872	1,283,058	—	209,186	2.00
1911	31,001	50,330,614	1,061,627	759,276	+	302,351	2.11
1912	28,817	51,708,035	1,077,105	569,566	+	507,539	2.08
1913	25,288	45,264,562	963,924	804,718	+	159,206	2.12
1914	25,080	45,546,440	960,169	734,427	+	225,742	2.11
1915	23,656	55,960,455	1,182,128	813,448	+	368,680	2.11
1916	25,093	63,732,849	1,326,403	3,433,744	—	2,107,341	2.08
1917	22,900	64,316,585	1,544,791	1,133,346	+	411,445	2.40
1918	24,988	90,404,852	2,394,093	2,335,144	+	58,949	2.65
1919	22,165	49,984,533	1,369,312	1,683,011	—	313,699	2.74
			(schillings)				
1920	19,819	28,231,007	936,038	687,041	—	—	3.32
1921	16,622	29,663,967	979,611	551,105	—	—	3.34
1922	10,482	26,629,992	725,214	594,341	—	—	2.72
1923	6,865	16,167,900	378,787	169,782	+	209,005	2.34
1924	7,933	19,675,874	410,235	286,785	+	123,450	2.13
1925	11,547	35,202,561	676,659	898,768	—	222,109	1.92
1926	13,245	34,107,514	661,291	546,689	+	114,602	1.94
1927	17,487	43,276,229	816,064	1,694,824	—	878,760	1.89
1928	23,627	58,301,034	1,273,401	2,765,863	—	1,492,462	2.19
1929	24,156	52,574,414	1,885,323	3,925,288	—	2,039,965	3.59

tution begun to do hail insurance business, originally in the form of provincial institutions (*Landesanstalten*). Its business from 1899 to 1921 was carried on only in Lower Austria; from 1922 it was extended to Upper Austria and Burgenland and from 1925 to the other parts of Austria.

The data concerning the grouped companies refer, for the years between 1873 and 1897, only to Lower Austria, to Upper Austria and to Salzburg. Between 1898 and 1920 the business done in Burgenland is added and during subsequent years the data concerning Styria and Carinthia are also included.

TABLE II. — *Hail Re-insurance in Austria from 1925 to 1930.*

COMPANIES	Premiums			Compensation			Total business in Austria	
	gross	handed over for re-insurance	net	gross	paid by re-insurance institutions	net	Pre-miums (gross)	Compen-sation (gross)
<i>Austrian companies</i> (total business)	(thousands of schillings)						as percentages of values assured	
Anker	296	177	119	283	86	197	2	1
Burgenl. V. A.	4	2	2	6	3	3	4	6
Donau	1,904	548	1,356	1,167	337	830	281	143
Phönix	3,725	2,249	1,476	1,794	1,021	773	344	154
Steirer	25	18	7	18	16	2	23	15
V. A. d. Bundesländer	614	443	171	191	143	48	578	179
Wechsels. Brandsch.	2	2	—	1	1	—	2	1
Wechsels. u. Janus .	469	352	117	236	173	63	411	167
Wiener Rück-Versich.	47	14	33	42	8	34	(1)	(1)
1930.	7,086	3,805	3,281	3,738	1,788	1,950	1,645	666
1929.	6,425	3,366	3,059	9,767	5,460	4,307	1,739	2,898
1928.	5,945	3,138	2,807	5,628	3,184	2,444	1,338	2,084
1927.	4,656	2,610	2,046	5,733	3,361	2,372	751	1,161
1926.	3,950	2,142	1,808	2,840	1,522	1,318	—	—
1925.	4,289	1,402	2,887	4,143	1,479	2,664	—	—
<i>Foreign companies</i> (business in Austria)								
Assicuraz. Generali .	100	31	69	37	9	28	100	37
Erste Ungarische . .	518	438	80	414	351	63	18	414
Foncière	32	22	10	15	12	3	32	15
Riunione Adriatica .	32	10	22	15	6	9	32	15
Vaterland	4	3	1	1	1	—	4	1
1930.	686	504	182	482	379	103	686	482
1929.	1,024	725	299	1,416	918	498	1,024	1,416
1928.	501	249	252	848	511	337	501	848
1927 (1)	332	169	163	588	360	228	332	588
1926.	231	126	105	187	111	76	231	187
1925.	151	68	83	157	97	60	151	157

(1) Indirect business only.

During the years of monetary inflation (up to 1922) the statistics are not given according to their nominal value ; they are converted into gold crowns and schillings.

The table contains only statistics concerning the business as a whole ; it is Lower Austria, Upper Austria and Burgenland which have most largely contributed to form the totals indicated in the table.

The results relating to 1930 were as follows : 21,403 insurance policies for an assured value of 33,194,006 schillings ; 1,591,217 schillings of net premiums and 641,335 schillings of compensation, not including the cost of estimating the damage. The gross profit was 949,882 schillings, and the premiums averaged 4.79 per cent. of the assured values and the compensation 1.93 per cent. (1).

As to re-insurance we give a table relating to the period 1925 to 1930. The data referring to 1930 are given separately for each company doing hail insurance business (2).

F. A.

CO-OPERATION

Co-operative Sale of Cocoons in Bulgaria.

Fresh cocoons are among the commodities which cannot be stored for a long period before selling. If left undried for more than 7 or 8 days after gathering, the pupa becomes transformed into the perfect insect and breaks through the silken casing, and the cocoons so perforated lose their commercial value. Unscrupulous traders have profited by this fact to speculate on the prices.

To counteract such speculation and consequent loss of profits to the producer, it was found to be essential to set up a co-operative selling organisation.

The Agricultural Bank of Bulgaria undertook the collection of cocoons among the silkworm breeders and storage in its own depot erected at Harmanly in 1913. As the results were encouraging, the Bank in 1920 developed the scheme on a more extended scale. In view of the good results obtained since 1920, the Bank decided further to construct desiccators and cocoon stores in almost all the producing regions.

The success of this organisation has also encouraged certain agricultural syndicates and co-operative societies to construct desiccators and storehouses for the use of members who are silkworm breeders.

At the present time, the Agricultural Bank of Bulgaria owns 16 desiccators and cocoon storehouses, while the agricultural syndicates and co-operative societies have about ten. Nearly all are of modern and convenient type.

Desiccators and storage accommodation are at present in existence in the following regions : Rousse, Perkovitz, Karlovo, Vratza, Perouchitz, Loukovite, Orchanie, Jambol, Pleven, Petritsch, St. Zagora, Pasardjik Plovdiv, Khotel, Harmanly, Stanimaka, Svilengrade, Tchirpan, Kunstendli, Pavlikeni, Roman, Karnobate and some few others.

(1) REIF, *loc. cit.*

(2) *Assekuranz Jahrbuch*, 1931, No. 51.

The agricultural and silk producers' syndicates of Svilengrad and of Tchirpan have done much to promote the sale of cocoons, and have organised from 60 to 70 per cent. of the silkworm breeders of their regions.

The following figures show the results obtained by these two syndicates.

Years	The "Kopriva" co-operative silk-producers' society at Svilengrad	Agricultural syndicate at Tchirpan
Weight of fresh cocoons deposited in the co-operative storehouses		
1926	—	kgs 43,000
1927	kgs 127,000	» 89,000
1928	» 123,000	» 45,000
1929	» 170,000	» 82,000
1930	» 195,000	» 66,000
1931	» 135,000	» 16,000

The total quantity of fresh cocoons deposited in the storehouses of the co-operative societies and of the Agricultural Bank, the prices paid to the breeders by the co-operative societies, as well as the prices of the cocoons on the open market, are shown below.

Years	Fresh cocoons in store with the co-operative societies	Average prices paid to depositors after sale	Average prices of cocoons on the open market
	kg.	levs	levs
1920	110,000	50-56	40-50
1921	69,000	50-56	25-46
1922	103,000	155-170	80-160
1923	317,000	85-115	60-100
1924	430,000	90-110	80-110
1925	220,000	100-120	90-110
1926	286,000	105-130	80-122
1927	623,000	70-110	70-95
1928	479,000	85-107	65-95
1929	737,000	90-102	75-93
1930	815,000	25-38	20-40
1931	338,000	29-42	25-30
1932	1,000,000	(27-33)	25-28

It will be seen from the above table that the quantity of cocoons placed in the storehouses of the co-operative societies and of the Agricultural Bank with a view to co-operative sale had a tendency to increase. In addition the prices obtained by the societies and the syndicates are from 10 to 20 per cent. higher than those on the open market.

At the present time, the storehouses and desiccators belonging to the co-operative societies and to the Agricultural Bank have a capacity of 1,200,000 kg. of fresh cocoons, representing the half of the exceptionally abundant output of 1929 which amounted to a weight of 2,374,000 kg.

In short, the intervention of the Agricultural Bank and the co-operative societies in the cocoon trade has resulted in a noticeable development and improvement in silkworm breeding in Bulgaria as well as in the maintenance of improved prices on the market.

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Co-operative Policy in Chile.

There is in existence some very recent legislation in Chile in favour of co-operative societies which has not yet penetrated into the juridical and economic consciousness of the agriculturists. The special law dealing with the subject is that of 14 January 1929, No. 4,531. Before that date no farmers' co-operative society had been formed spontaneously according to ordinary law. The first agricultural co-operative society of production was organised in July of 1929. It is in fact in Chile incumbent on the Ministry of Agriculture to take a share in the direction of the organisation of agricultural producers' co-operation.

There is in existence in the Ministry a Department of Co-operative Societies, divided into two services; one for co-operative societies for production and the other for consumers' co-operative societies.

These two offices work together, the object being to ensure that the products of the former group of co-operative societies shall be purchased by the latter group.

This Department is giving a marked impulse to the co-operative movement and has already succeeded in stimulating interest and enthusiasm among the agricultural classes, as shown by the following table:

Co-operative Societies formed by the Chilean Ministry of Agriculture.

NAME	OBJECT
1. — Cooperativa Agrícola Vinícola de Yumbel, Limitada.	Improvement of the quality of wines sold to members.
2. — Cooperativa Lechera de Bio-Bio, Limitada.	Sale of milk and manufacture of milk products.
3. — Cooperativa de Productores de Leche de Valdivia, Limitada.	Collection of milk produced on members' farms for sale as milk and as milk products, including whey and other residual products.
4. — Cooperativa Agrícola de Productores de Leche de Colchagua, Limitada.	Provision of capital to members for dairy equipment and collection of milk for sale as fluid milk or as milk products.
5. — Cooperativa Central Agrícola Apícola, Limitada.	Preparation and sale of honey and beeswax of the members.
6. — Cooperativa Agrícola e Industrial "El Carmen", Limitada.	Purchase of seeds, fertilisers, breeding animals and farm machines and sale of members' products.

NAME	OBJECT
7. - Cooperativa Agrícola de Santiago, Limitada.	Purchase of the farmland of Santa Teresa de Tango for the formation of a colony.
8. - Cooperativa Agrícola Lechera de "Cautín", Limitada.	Collection of members' milk to sell as fluid milk or as milk products or residues.
9. - Cooperativa Agrícola Comercial e Industrial de Bio-Bio, Limitada.	Obtaining of lands held by the State for the formation of an agricultural colony by the members of the society. Purchase of implements and sale of products.
10. - Cooperativa Frutícola de Aconcagua, Limitada.	Collection of fruit grown by members and sale in fresh or preserved condition.
11. - Asociación Cooperativa de Productores de Frutas, Legumbres y Flores de "La Cruz", Limitada.	Encouragement of the development of fruit and vegetable growing by members, and concentration of production for purposes of sale or transformation.

There are further in course of formation 15 co-operative societies for milk ; 12 for fruit ; 8 for purchase and sale of seeds ; one for poultry-keeping ; 2 for milling and one for charcoal-making.

These statistical data seem at first sight of small importance in an absolute sense, but they have considerable relative importance, as referring to an agricultural country in which up to 1928 the growers showed no desire for co-operation and no interest in the co-operative idea. A further importance attaches to the figures, as reflecting a movement which dates only from the Law of January 1929 with its regulations of 10 April 1929, and which was begun in consequence of the application of the powers of initiative assigned by this law to the Ministry of Development (*Ministerio de Fomento*), powers which are much in advance of those assigned by other American or European legislation to Government authority.

Under these powers it is open to the Ministry to calculate and make provision for the future progress of co-operation in Chile taking into account: (a) the differential character of the co-operative programme adopted in this law, a character which is essentially economic rather than juridical ; (b) the separate legal privileges granted to the co-operative societies established in order to fulfil the definite purposes of the legislator ; (c) the credit programme instituted in favour of these new agricultural organisations.

It may here be noted that the functions to be undertaken by the Section of Agricultural Co-operative Societies, set up by the Ministry of Development are as follows : keeping of the Register of the co-operative societies, organisation of the statistical and information services in connection with this Register, granting of certificates, propaganda and welfare work of various kinds, safe keeping of the acts and documents, presented by the recognised societies, *viz.* those constituted as corporate bodies, and encouragement of the formation of those institu-

tions in agricultural centres. In addition the Section undertakes a supervision of such institutions by means of periodical inspections, with audit of books, accounts, etc., whether relating to the member or to commercial transactions.

This co-operative authority may also, when considered necessary, appoint Government delegates to attend the meetings of the general management councils of any of these societies.

As already indicated, the legal position of the Chilean co-operative societies differs from that of the co-operative societies of other American and European countries, in that they are corporate bodies recognised by Decree of the President of the Republic, who grants this status only to those societies which are formed and are organised in accordance with the purposes of the law and with the provisions of the regulations of 10 April 1929, and the rules of which are modelled on the rules supplied to the foundation members by the Ministry.

The name of agricultural co-operative society is reserved to organisations of this type, that is to say, its use by any other kind of society is prohibited. The name is followed by the word *limited* or *unlimited*, according to the kind of liability assumed, with the understanding that unlimited liability means that in the case of contracts with third parties there is proportionate liability of the members. To appreciate, taking the standpoint of comparative co-operative law, the distinctive character of Chilean co-operation, it is essential to note that the kind of co-operation is not indicated in Chile by means of legal characteristics whether intrinsic or extrinsic, but by definite economic purposes, established by the legislator, in accordance with the special national policy in regard to co-operative law.

These economic purposes, giving rise to as many types of groups of society, are as follows :

(1) purchase, or acquisition in the form of a concession or a tenancy, of land or building for the use of members ;

(2) purchase and distribution, on account of members, of fertilisers, seeds, machinery, raw materials and other commodities required for the carrying on of farming activities ;

(3) joint production, sale and export, of plant, animal and industrial products ;

(4) installation of equipment and other requirements for factories and establishments for the transformation, and other forms of preparation of the products obtained from the members, or purchased from their societies ;

(5) facilitation of the agricultural credit operations required by members ;

(6) supply to members for their own consumption of food stuffs, sanitary equipment, objects of personal or household use. These commodities are either produced by the members, or bought by the society from the producer-dealers at wholesale prices, or are manufactured, but merely as a subsidiary activity to the main purpose of the agricultural society. The main provision, relating to the capital of the society, is to be interpreted in accordance with the different purposes of enumerated, which are specific, but very wide in scope. This capital may consist in money, real or personal property contributed by members, industrial work, or work done by the members.

Contributions not taking the form of money are estimated in each case, and converted into shares representing the amount. The minimum number of members to a society is five ; no one of these may hold more than 20 per cent. of the capital.

The privileges of these six types of agricultural co-operative societies are :

(1) a reduction to the extent of 25 per cent. which the Government may allow societies on the railway rates for transport of commodities produced or purchased ;

(2) preference in the further consignment of such commodities, so far as is in accordance with the general railway legislation ;

(3) opportunities of receiving free grants of land or premises from public land belonging to the State or the Communes ;

(4) special loans of the National Savings Bank, the Bank of Agricultural Credit, branches of the Mortgage Credit Bank and of the Institute of Industrial Credit, up to 75 per cent. of the value of the real property, live stock, equipment, fruit and products given in pledge by the Society to the lending institution ;

(5) loans which these institutions may grant, for a sum up to five times the amount of the paid up capital, for a period of not more than five years, in the case of purchase of machines, breeding animals or of works of a permanent character;

(6) discount at the Central Bank of commercial bills of exchange of the co-operative societies, at the same interest fixed by the Banks which are shareholders in the Central Bank.

Finally mention should be made of article 28 of the law to which reference has been made, according to which civil disputes relating to operations within the society and arising between members or between members and the society, are regulated in accordance with the procedure laid down in the Code of civil procedure for arbitration tribunals.

These distinct purposes and the privileges corresponding to them, and in particular the working of the services of agricultural credit, the six types of grouping contemplated by the law, differing in principles and methods from those of ordinary commercial credit, all these are connected with the general purpose of placing the co-operative societies on an equal basis in regard to the money market with the other organisations coming under commercial law with equal rights, alike in supplying as in receiving funds for purposes of the members.

E. F.

* * *

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[The first attempt at a statistical survey of Italian agriculture, the work of Correnti and Maestri, dates back to 1864. But it was only in 1910, by the labours of Ghino Valenti, that a method of agricultural survey was devised in accordance with which it should have been possible to gain a knowledge of the composition of the crops and of the agricultural production of the country. Five volumes were published of this survey, relating to Lombardy, Venetia, the Marches, Umbria and Latium. This statistical basis remained almost unchanged for many years, in the course of which Italian agriculture made remarkable progress, especially in certain zones, and underwent radical transformation. Hence, the Institute of Agricultural Economy and Statistics of the Ministry of National Economy first and subsequently the Central Institute of Statistics of the Kingdom, to which passed in 1927 the services of agricultural and forestry statistics, recognised the need for a general revision, including fresh returns for a number of provinces, of the previous material collected. This revision was begun in 1930 and brought to a conclusion in the second half of 1932. The Central Institute of Statistics made use of the collaboration of a specially appointed Committee of Enquiry for Agricultural Statistics, under the presidency of A. Serpieri.

The first part has just been published of this new survey which acts as the point of departure and reference for the annual agricultural statistics. This first part relates to the province of Rovigo (Venetia) and will be followed by 91 parts relating to the other provinces, as well as 18 volumes containing summaries and illustrative material relating to the different regions of Italy, with a general report for the Kingdom as a whole.

All data relate to 1929; reference is however made, when convenient, to the agricultural and population census returns of 1930 and 1931.

Under the head of Illustrative Notes on the Results of the Agricultural Survey some preliminary information is given as to the returns that form the subject matter of the publication, as regards the territory, population, farming enterprises, live stock, area of the province and of the agricultural zones contained in it, and on the production per unit of area and aggregate.

These Notes are followed by three tables. In the first are shown — for the separate communes of the province, grouped by regional type (lowland, hill or mountain) and by agricultural zone, or aggregate of communes having relatively uniform agricultural characteristics — the figures for the territorial area and for the area under agricultural or forest production, also the data in respect of the productive area, shown under kinds

of cultivation (sown lands, permanent meadows, woods, etc.), as also the population data according to the 1931 census in absolute figures and in percentages of the total by zone.

The second table consists of four pages, one for the province as a whole, and the other three for each of the three agricultural zones characterising it; the content of these pages is almost identical with that of the pages making up the third table, one for each of the 48 Communes of the province of Rovigo. On each page, in the first of the sections into which it is divided, there appear certain general data, as follows: *geographical data*: general lie of the ground, latitude and longitude, height above sea-level, maximum, minimum and average; *demographical data*, following the census of 1931; population actually present and the numbers domiciled in the commune, the total and the number per square kilometre, the numbers living in agglomeration and those scattered respectively; *data of the agricultural census returns of 1930*: total agricultural population and population per square kilometre, number of farms shown in size classes, live stock in kinds, and for cattle in sub-groups according to age and sex. In the second section of each page there is shown the area of the territory under review, sub-divided among the kinds of cultivation indicated; in a third section is shown the further subdivision of the sown land among groups of crops of similar character (cereals, industrial crops, forage crops, other forms of cultivation, fallow); in a fourth section there is shown the subdivision of the area occupied by trees, shrubs, etc. For each of these plants (vine, olive, mulberry, citrus trees, other fruit trees, etc.) there is shown the specialised cultivation, that carried on among other tree cultivations, and the mixed cropping along with herbaceous plants, and for each of the areas thus distinguished the number of plants per hectare is given.

In the fifth section of each page there is given for each separate crop, the area occupied in 1929, and the production, total and per unit of area, expressed as the average of the period 1923-28 and separately for 1929. In the last two sections the production figures are conveniently grouped according to the two fundamental classes of cereals and forage plants.

The tables are prefaced by a concise note on the main data presented. The critical comparison between the data of 1910 and those of 1929 is of especial interest, as it makes clearly evident the fundamental changes which have taken place in a period of 20 years in the agriculture of the province].

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The first volume deals with life insurance. The topics handled in the second volume are the insurances included under the heading of casualty insurance, surety insurance and miscellaneous insurance. The third volume deals with fire insurance and maritime insurance. In each of the volumes will be found not only the figures required for bringing up to date the history of the insurance societies, but also other information of interest relating to insurance.

As regards agriculture, the third volume is the one of most obvious importance, as containing the data relating to fire and hail insurance. With few exceptions hail insurance is effected by fire insurance societies.

By means of a table which gives the figures relating to the net premiums written and to losses paid in the United States during 1930 in all the branches of insurance, dealt with in the third volume the data are supplied relating to hail business divided according to the character of the insurance companies dealing with hail insurance, the different classes of companies being American stock companies, American mutual companies, American reinsurance companies, direct writing foreign companies, foreign reinsurance companies. To give an idea of the great mass of material collected in this volume, it will be enough to say that it contains more or less detailed information on about 1,000

insurance institutions. The part devoted to insurance agents contains nearly 32,000 names, of which 23,000 handle fire insurance. The volume also contains a list of independent adjusters whose services are available to fire insurance companies, a list of attorneys and counselors specially qualified to handle insurance cases, a list of universities, colleges and insurance societies which provide courses of instruction and also a list of the societies which have ceased to effect insurances. In another part of the volume there is a list of insurance societies in 112 countries, and there is also a list of the most important fires that have broken out in the United States or Canada during the last two centuries, and in the whole world from 1897 to 1930.

This volume contains 980 pages while the first volume contains 1,400 and the second 1,100.

This important publication forms a valuable source of information and enquiry not only for the insuring body and the insured person, but also for all persons anxious to deal with the problems of insurance in the United States.

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MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Lithuania, Poland, Sweden and Switzerland: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

CEREALS

Cereal crop situation and prospects

In nearly all European countries June was a cold, damp month. There was a predominance of warm, sunny days only in the British Isles, Belgium, and a large part of France. These seasonal conditions varied in their effects according to country but in general rather favoured the growth of cereals throughout practically the whole of Europe except for Italy and Yugoslavia where the humid warmth, causing severe outbreaks of rust, and mists have caused extensive damage.

The crop situation at the beginning of July showed a fairly considerable improvement compared with that of the previous month in most European countries although many of them still reported a certain delay in flowering and the first stage of ripening of the ears. The countries in which the situation has, on the contrary, deteriorated are Italy, southern France, Yugoslavia and probably also Hungary which, at the end of June suffered from great heat which hastened and in some cases precipitated the ripening of the ears.

Seasonal conditions in the first half of July were not everywhere favourable. France experienced continual storms which caused lodging in a number of areas; in Italy and nearly the whole of the Danubian region the bad weather persisted and not only favoured the development of rust but also hindered reaping and threshing. Fairly extensive damage by hail and storms is also reported.

The first forecasts of production grouped in the following table are still comparatively few in number and their total cannot be taken as an indication of the result of the coming harvest as it represents less than half of the total production of the continent.

For wheat the total of the first forecasts known shows a slight increase in this year's production compared with that of 1931 but an attentive examination of crop prospects in all European countries leads to the conclusion that total production this year will be smaller than in 1931, probably by 40 to 60

Cereals production.

COUNTRY	BRITISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1931 = 100	Average = 100
	Thousand centals			Thousand bushels			%	%
WHEAT								
Germany	110,093	93,329	74,380	183,485	155,545	123,964	118.0	148.0
Belgium	8,363	8,291	8,731	13,937	13,817	14,551	100.9	95.8
Bulgaria	32,335	36,718	26,200	53,891	61,195	43,666	88.1	123.4
Spain	96,871	80,657	85,802	161,448	134,426	143,001	120.1	112.9
Finland	685	696	554	1,141	1,161	923	98.3	123.6
Greece	11,023	7,323	7,152	18,372	12,205	11,920	150.5	154.1
Hungary	36,487	43,531	49,246	60,810	72,550	82,075	83.8	74.1
Malta	181	166	179	301	277	298	108.6	101.0
Netherlands	8,265	4,051	3,660	13,760	6,751	6,100	203.8	225.6
Rumania	58,811	81,181	66,443	98,016	135,299	110,736	72.4	88.5
Totals	363,105	355,943	322,347	605,161	593,226	537,234	102.0	112.6
Canada	253,458	182,486	261,452	422,429	304,144	435,744	138.9	96.9
United States (w) (s)	259,200	472,479	352,531	432,000	787,465	587,541	54.9	73.5
Mexico	183,000	62,884	162,923	305,000	104,806	271,532	291.0	112.3
	5,438	9,736	6,724	9,064	16,226	11,207	55.9	80.9
Totals	701,096	727,585	783,630	1,168,493	1,212,641	1,306,024	96.4	89.5
Korea	4,983	5,370	5,422	8,304	8,951	9,037	92.8	91.9
India	204,557	207,178	199,091	340,928	345,296	331,819	98.7	102.7
Totals	209,540	212,548	204,513	349,232	354,247	340,856	98.6	102.5
Algeria	17,990	15,390	17,755	29,982	25,649	29,592	116.9	101.3
Tunis	10,362	8,378	6,905	17,269	13,962	11,508	123.7	150.1
Totals	28,352	23,768	24,660	47,251	39,611	41,100	119.3	115.0
GRAND TOTALS	1,302,093	1,319,844	1,335,150	2,170,137	2,199,725	2,225,214	98.7	97.5
RYE								
Germany	175,329	147,269	165,770	313,088	262,982	296,018	119.1	105.8
Belgium	11,244	11,470	11,862	20,078	20,483	21,182	98.0	94.8
Bulgaria	6,402	6,760	4,716	11,433	12,072	8,422	94.7	135.7
Spain	13,370	11,817	12,420	23,875	21,103	22,179	113.1	107.6
Finland	6,682	6,604	6,663	11,933	11,792	11,898	102.2	100.3
Greece	882	1,017	898	1,575	1,816	1,603	86.7	98.2
Hungary	15,155	12,136	16,374	27,062	21,672	29,240	124.9	92.6
Netherlands	8,051	7,933	8,698	14,377	14,167	15,532	101.5	92.6
Rumania	6,614	7,819	7,123	11,811	13,962	12,721	84.6	92.8
Totals	243,729	212,825	234,524	435,232	380,049	418,795	114.5	103.9
Canada	5,551	2,980	8,685	9,912	5,322	15,509	186.2	63.9
United States	24,640	18,338	22,692	44,000	32,746	40,522	134.4	108.6
Totals	30,191	21,318	31,377	53,912	38,068	56,031	141.6	96.2
Algeria	44	20	28	79	37	49	215.3	159.5
GRAND TOTALS	273,964	234,163	265,929	489,223	418,154	474,875	117.0	103.0

Cereals production.

COUNTRY	BRITISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1931 = 100	Average = 100
	Thousand centals			Thousand bushels			%	%
BARLEY								
Germany	70,171	66,540	64,324	146,191	138,627	134,011	105.5	109.1
Belgium	2,068	1,705	1,862	4,308	3,552	3,879	121.3	111.1
Bulgaria	7,022	7,949	6,607	14,629	16,560	13,765	88.3	106.3
Spain	55,577	43,548	45,265	115,788	90,727	94,304	127.6	122.8
Finland	3,335	3,086	3,220	6,947	6,430	6,708	108.0	103.6
Greece	5,291	4,391	3,333	11,023	9,147	6,945	120.5	158.7
Hungary	12,563	10,496	13,327	26,174	21,867	27,765	119.7	94.3
Malta 2)	129	137	141	269	285	294	94.4	91.8
Netherlands	1,316	1,572	1,960	2,742	3,274	4,084	83.7	67.1
Rumania	44,534	31,182	42,194	92,780	64,964	87,906	142.8	105.5
Totals	202,006	170,606	182,233	420,851	355,433	379,661	118.4	110.9
Canada	1) 41,487	32,344	54,795	1) 86,432	67,383	114,158	128.3	75.7
United States	149,760	95,503	126,785	312,000	198,965	264,139	156.8	118.1
Totals	191,247	127,847	181,580	398,432	266,348	378,297	149.6	105.3
Korea	21,160	19,621	17,617	44,083	40,877	36,702	107.8	120.1
Algeria	13,966	12,993	16,886	29,097	27,069	35,181	107.5	82.7
Tunis	7,496	3,968	4,063	15,616	8,268	8,465	188.9	184.5
Totals	21,462	16,963	20,949	44,713	35,337	43,646	126.5	102.5
GRAND TOTALS	435,873	335,037	402,379	908,079	697,995	838,306	130.1	108.3
OATS								
Germany	139,049	136,795	144,210	434,526	427,482	450,653	101.6	96.4
Belgium	15,293	15,483	15,044	47,790	48,384	47,013	98.8	101.7
Bulgaria	2,712	2,754	2,327	8,474	8,605	7,272	98.5	116.5
Spain	14,334	13,335	13,333	44,794	41,670	41,664	107.5	107.5
Finland	12,901	14,684	12,952	40,317	45,886	40,475	87.9	99.6
Greece	2,205	2,073	1,595	6,889	6,477	4,985	106.4	138.2
Hungary	5,456	4,278	7,753	17,049	13,368	24,227	127.6	70.4
Netherlands	6,065	6,331	7,341	18,953	19,784	22,941	95.8	82.6
Rumania	19,401	14,776	24,354	60,627	46,175	76,107	131.3	79.7
Totals	217,416	210,509	228,909	679,419	657,831	715,337	103.3	95.0
Canada	1) 134,637	111,615	134,725	1) 420,739	348,795	421,014	120.6	99.9
United States	389,440	355,885	380,694	1,217,000	1,112,142	1,189,662	109.4	102.3
Totals	524,077	467,500	515,419	1,637,739	1,460,937	1,610,676	112.1	101.7
Algeria	2,194	2,628	4,169	6,855	8,212	13,028	83.5	52.6
Tunis	617	728	780	1,929	2,274	2,429	84.8	79.1
Totals	2,811	3,356	4,949	8,784	10,486	15,457	83.8	56.8
GRAND TOTALS	744,304	681,365	749,277	2,325,942	2,129,254	2,341,470	109.2	99.3

w) Winter wheat. — s) Spring wheat. — 1) Conjectural estimate based on area and crop condition on July 1. — 2) Including meslin.

million bushels. For rye and barley, on the contrary, crops larger than those of last year may be counted upon whereas the oat crop is anticipated to be deficitary.

As regards the U. S. S. R. the areas sown to wheat and rye are below those of 1931; on the other hand, it seems, that crop condition towards the end of June was better than last year at the same date and that there were prospects of a production considerably above that of 1931.

At the end of June, however, and in the first half of July in several important areas of production the weather was dry and hot and fairly serious damage may result.

In North America it is now certain that winter wheat will give a very small crop while spring wheat is expected to give a much larger crop than in 1931 both in the United States and Canada. On the basis of crop condition on 1 July total wheat production in Canada and the United States is expected to be 1,159 million bushels, a decrease of about 37 million on that of 1931 and of 135 million with respect to the average of 1926-30. The surplus exportable from the new crop in North America may be calculated on the basis of these expectations at about 360 million bushels. As always, these provisional figures are subject to considerable modifications as the season advances. In the first half of July weather in North America was favourable to development of spring wheat, though in the middle of the month complaints of lack of rain began to be made, but the winter wheat belt has not had weather favourable for the harvest, which was hindered by rains. The production of other cereals appears as a whole very much above of 1931.

In North Africa the crop is now definitely known to be larger than last year in all the principal areas of production. The Asiatic producers report a total crop somewhat below that of 1931.

On the basis of crop condition on 1 July the total production in the northern hemisphere excluding the U. S. S. R. appears a little below (about 100 million bushels) that of last year for wheat while it appears to be larger for rye, barley and oats.

As regards the countries of the southern hemisphere where the areas under wheat seem to have undergone fairly considerable extension, June was on the whole favourable to sowings and germination, rains having fallen in sufficient amount in both Argentina and Australia.

G. C.

* * *

Germany: The cold, damp weather which predominated during June was generally favourable to the growth of the crops. Only in the north-western regions and Mecklenburg where little rain fell, was growth checked by drought. The crop condition of winter cereals is in general satisfactory. Flowering of the rye crop took place generally without the occurrence of adverse conditions. In places, however, lodging is reported. At the end of June winter wheat was in flower whereas winter barley had already reached maturity. The spring crops have also in general grown

satisfactorily. The first estimate of spelt production which is not included in the adjoined table is 3,357,000 centals against 2,941,000 last year and 3,200,000 on the average for 1926-30; percentages: 114.1 and 104.9.

Austria: After some warmer days at the beginning of June there was a sharp fall in temperature accompanied by moderate precipitation. Here and there hail was reported. Snow fell on the mountains and there was hoar-frost in the high valleys. In the second decade of June day temperatures rose but the nights were exceptionally cold. At the beginning of the third decade it was again exceptionally cold and the sky was overcast. The frequent rains during this decade did not bring the necessary moisture.

At the beginning of July the ears of winter wheat were well-formed but flowering was somewhat hindered by the rain and cold. The grains were forming slowly but satisfactorily. Despite the unfavourable flowering conditions the ears of winter rye developed satisfactorily almost everywhere. Here and there shedding of rye was noted. The ears of winter barley are badly formed and the straw is short. Ripening is backward and at the beginning of July harvesting had commenced only in a few isolated fields. Condition of spring cereals is generally satisfactory. In some valleys spring barley and oats have felt the lack of rains.

Belgium: The early part of June was misty and cold which a predominance of north and north-east winds. Subsequently there were some warm and sunny days. In some regions storms, accompanied at times by hail, occasioned losses to crops. The dry weather favoured weeding but on light lands some crops were feeling the lack of water. On the whole June was quite favourable to agriculture but growth remained 10-15 days backward. Winter cereals are well-developed; earing and flowering took place under good conditions; there is little shedding and the crop is promising. Smut is abnormally prevalent in winter barley. Oats are generally in good condition but somewhat irregular; mice have caused damage and wild mustard is abundant but has been combated with considerable success.

Production of spelt in 1932 is estimated at 540,000 centals against 587,000 in 1931 and 683,000 on the average of 1926-30; percentages 92.1 and 79.2. Production of meslin is 137,000 centals (236,000 bushels) against 100,000 (173,000) and 177,000 (306,000); percentages 136.6 and 77.2. Crop condition on 1 July was in both cases good; last year at the same date it was average.

Bulgaria: In the first half of June the weather was fairly favourable to growth but in the latter part of the month there were storms and hail, which caused considerable damage. In certain districts locusts appeared, causing losses over wide areas. A good crop is generally expected. The meslin crop is estimated at 2,698,000 centals (4,653,000 bushels), 88.3 % of that of last year and 113.9 % of the average for the five years ending 1930. For spelt a crop of 231,000 centals is forecast, 76.7 % of last years and 120.3 % of the mean.

Spain: Harvesting of cereals is proceeding normally and confirms forecasts of production.

Irish Free State: Weather in June was dry with bright sunshine and high temperatures. These conditions, following wet weather in May, benefited growing crops. No serious damage from diseases or insect pests was reported.

COUNTRIES	AREA SOWN					CROP CONDITION (†)											
	1931-32	1930-31	Average 1925-26 to 1929-30	% 1931-32													
				1930-31 = 100	Aver. = 100	I-VII-1932			I-VI-1932			I-VII-1931					
			Thousand acres			a)	b)	c)	a)	b)	c)	a)	b)	c)			
RYE.																	
Germany	(w) 10,825	10,610	11,425	102.0	94.7	2.5	—	—	—	2.5	—	—	—	2.9	—	—	—
	(s) 168	179	202	93.6	83.0	2.7	—	—	—	2.8	—	—	—	2.9	—	—	—
*Austria	(w) ...	865	891	...	...	2.4	—	—	—	2.5	—	—	—	2.7	—	—	—
	(s) ...	39	51	...	...	2.6	—	—	—	2.5	—	—	—	2.7	—	—	—
Belgium	573	553	569	103.6	100.7	—	100	—	—	—	—	—	—	100	—	—	—
Bulgaria	598	597	521	100.1	114.7	130	—	—	—	130	—	—	—	145	—	—	—
Spain	1,469	1,516	1,658	96.9	88.6	e)	—	—	—	e)	—	—	—	—	—	—	—
*Estonia . . . . .	...	356	351	...	...	1)108	—	—	—	1)104	—	—	—	—	—	—	1)94
Finland	544	554	540	98.2	100.7	—	f)	—	—	—	—	—	—	f)	—	—	—
France	1,781	1,744	1,899	102.1	93.8	—	—	—	—	—	—	—	—	—	—	—	—
Hungary	1,561	1,486	1,631	105.1	95.7	—	—	—	—	—	—	—	—	—	—	—	—
*Latvia . . . . .	...	572	628	...	...	115	—	—	—	120	—	—	—	—	—	—	60
Lithuania	1,186	1,257	1,164	94.3	101.9	3.8	—	—	—	—	—	—	—	—	—	—	2.6
Luxembourg	17	16	18	108.1	97.1	2.0	—	—	—	2.1	—	—	—	2.5	—	—	—
*Norway . . . . .	...	15	20	...	...	w)103	—	—	—	—	—	—	—	—	—	—	w)84
Netherlands	407	445	485	91.6	84.1	1)77	—	—	—	1)77	—	—	—	—	—	—	1)65
Poland	(w) 13,774	14,201	13,996	97.0	98.4	1)3.3	—	—	—	1)3.0	—	—	—	1)3.0	—	—	—
Rumania	791	1,006	779	78.6	101.5	—	f)	—	—	—	—	—	—	e)	—	—	—
Switzerland	(w) 46	(w) 46	48	100.0	95.5	102	—	—	—	—	—	96	—	—	—	—	98
Czechoslovakia	(w) 2,448	2,417	2,482	101.3	98.6	2.4	—	—	—	2.8	—	—	—	—	—	—	3.2
	(s) 70	73	66	97.0	106.4	—	—	—	—	—	—	—	—	—	—	—	—
Yugoslavia	(w) 509	522	460	97.5	110.6	—	—	—	—	—	—	—	—	—	—	—	—
Total Europe	36,767	37,222	37,943	98.8	96.9	—	—	—	—	—	—	—	—	—	—	—	—
U. S. S. R.	65,731	68,380	65,481	96.1	100.4	—	—	—	—	—	—	—	—	—	—	—	—
Canada 4)	(w) 498	599	705	83.2	70.7	—	—	—	—	—	—	86	—	—	—	—	41
	(s) 164	179	251	91.6	65.4	—	—	—	—	96	—	95	—	—	—	—	64
United States 4)	3,324	3,143	3,312	105.8	100.4	82.2	—	—	—	—	—	80.4	—	—	—	—	68.2
Total America	3,986	3,921	4,268	101.7	93.5	—	—	—	—	—	—	—	—	—	—	—	—
Algeria	5	3	4	161.1	147.3	—	100	—	—	—	100	—	—	—	—	—	80
GRAND TOTAL. (m)	40,758	41,146	42,215	99.1	96.6	—	—	—	—	—	—	—	—	—	—	—	—
	(n) 105,489	109,526	107,696	97.2	98.9	—	—	—	—	—	—	—	—	—	—	—	—
BARLEY.																	
Germany	(w) 611	561	444	108.9	137.7	2.6	—	—	—	2.8	—	—	—	2.7	—	—	—
	(s) 3,271	3,440	3,295	95.1	99.3	2.5	—	—	—	2.5	—	—	—	2.6	—	—	—
*Austria	(w) ...	18	23	...	...	2.6	—	—	—	2.7	—	—	—	2.6	—	—	—
	(s) ...	404	364	...	...	2.5	—	—	—	2.8	—	—	—	2.9	—	—	—
Belgium	89	70	78	126.9	114.2	—	100	—	—	—	—	—	—	100	—	—	—
Bulgaria	605	607	591	99.7	102.5	120	—	—	—	120	—	—	—	145	—	—	—
Spain	4,553	4,644	4,481	98.0	101.6	d)	—	—	—	d)	—	—	—	—	—	—	—
Finland	300	276	276	109.1	108.8	—	f)	—	—	—	—	—	—	f)	—	—	—
France	(w) 414	423	408	97.8	101.5	—	—	—	—	—	—	—	—	—	—	—	—
	(s) 1,445	1,490	1,313	96.9	110.0	—	—	—	—	—	—	—	—	—	—	—	—
*Scotland . . . . .	...	88	112	...	...	100	—	—	—	—	—	95	—	100	—	—	—
Hungary	1,158	1,165	1,077	99.3	107.6	2.6	—	—	—	—	—	—	—	—	—	—	3.1
Lithuania	495	474	499	104.4	99.2	3.4	—	—	—	3.5	—	—	—	3.5	—	—	—
Luxembourg	10	11	9	89.9	114.1	2.4	—	—	—	2.3	—	—	—	2.4	—	—	—
Malta 5)	6	7	7	90.3	94.0	—	—	—	—	—	—	—	—	—	—	—	—
*Norway . . . . .	...	138	142	...	...	—	—	—	—	—	—	—	—	—	—	—	89
Netherlands	50	71	71	70.3	70.0	1)71	—	—	—	1)75	—	—	—	1)72	—	—	—
Poland	(w) 125	128	175	97.9	71.7	1)3.2	—	—	—	1)3.0	—	—	—	1)3.2	—	—	—
	(s) ...	3,031	2,730	...	...	1)3.3	—	—	—	1)3.2	—	—	—	1)3.2	—	—	—
Rumania	4,547	4,742	4,494	95.9	101.2	e)	—	—	—	—	—	—	—	e)	—	—	—
Switzerland	18	18	16	100.0	110.0	—	—	—	—	99	—	—	97	—	—	—	98
Czechoslovakia	(w) 16	16	15	99.1	108.2	—	—	—	—	—	—	—	—	—	—	—	—
	(s) 1,699	1,765	1,745	96.3	97.4	2.3	—	—	—	2.7	—	—	—	2.9	—	—	—
Yugoslavia	(w) 609	629	572	96.8	106.4	—	—	—	—	—	—	—	—	d)	—	—	—
Total Europe	20,021	20,537	19,566	97.5	102.3	—	—	—	—	—	—	—	—	—	—	—	—

COUNTRIES	AREA SOWN					CROP CONDITION (†)											
	1931-32	1930-31	Average 1925-26 to 1929-30	% 1931-32		I-VII-1932			I-VI-1932			I-VII-1931					
				1930-31 = 100	Aver. = 100												
						Thousand acres					a)	b)	c)	a)	b)	c)	a)	b)	c)
U. S. S. R.	16,329	16,854	18,169	96.9	89.9	—	—	—	—	—	—	—	—	—	—	—	—
Canada 4)	3,688	3,768	4,704	97.9	78.4	—	—	93	—	—	93	—	—	—	—	—	65
United States 4) .	13,895	11,471	11,231	121.1	123.7	—	—	81.6	—	—	82.3	—	—	—	—	—	70.7
Total America . .	17,583	15,239	15,935	115.4	110.3	—	—	—	—	—	—	—	—	—	—	—	—
Syria and Lebanon	810	941	746	86.0	108.6	...	...	...	—	—	80	—	—	—	—	—	—
Algeria	3,203	3,178	3,505	100.8	91.4	—	—	90	—	100	—	—	—	—	—	—	80
Cyrenaica . . . w)	47	82	99	57.7	47.5	—	—	—	—	—	—	—	—	—	—	—	—
*Egypt . . . . .	...	306	364	...	...	108	—	—	109	—	—	—	105	—	—	—	—
French Morocco . .	2,930	3,222	2,995	90.9	97.8	—	—	—	—	—	—	—	—	—	—	—	—
Tunis	1,483	1,223	1,235	121.2	120.1	...	...	...	120	—	—	—	—	—	—	—	—
Total Africa . . .	7,663	7,705	7,834	99.5	97.8	—	—	—	—	—	—	—	—	—	—	—	—
GRAND TOTAL. (m)	46,077	44,422	44,081	103.7	104.5	—	—	—	—	—	—	—	—	—	—	—	—
(n)	62,406	61,276	62,250	101.8	100.2	—	—	—	—	—	—	—	—	—	—	—	—
OATS.																	
Germany	8,103	8,310	8,638	97.5	93.8	2.7	—	—	2.7	—	—	—	2.7	—	—	—	—
*Austria . . . . .	...	777	759	...	...	2.5	—	—	2.3	—	—	—	—	—	—	3.0	—
Belgium	714	729	682	98.0	104.7	e)	—	—	—	—	—	—	—	—	—	f)	—
Bulgaria	304	295	335	102.9	90.6	130	—	—	130	—	—	—	140	—	—	—	—
Spain	1,826	1,986	1,902	91.9	96.0	e)	—	—	e)	—	—	—	—	—	—	—	—
Finland	1,119	1,149	1,100	97.4	101.8	—	f)	—	—	—	—	—	f)	—	—	—	—
France w)	2,123	2,174	2,021	97.7	105.1	—	—	—	—	—	—	—	—	—	—	—	—
(s)	6,295	6,456	6,563	97.5	95.9	—	—	—	—	—	—	—	—	—	—	—	—
*Scotland . . . . .	...	835	893	...	...	105	—	—	—	100	—	—	—	—	—	—	95
Hungary	585	596	665	98.2	87.9	2.9	—	—	—	—	—	—	—	—	—	—	3.9
Lithuania	931	900	828	103.4	112.4	3.3	—	—	3.4	—	—	—	3.6	—	—	—	—
Luxemburg	74	75	72	98.9	102.9	2.6	—	—	2.3	—	—	—	2.8	—	—	—	—
*Norway . . . . .	...	237	241	...	...	—	—	92	—	—	—	—	—	—	—	—	86
Netherlands	350	369	378	94.9	92.5	1)96	—	—	—	—	1)65	1)71	—	—	—	—	—
*Poland . . . . .	...	5,367	5,125	...	...	1) 3.4	—	—	1) 3.2	—	—	1) 3.2	—	—	—	—	—
Rumania	2,100	2,154	2,757	97.5	76.2	e)	—	—	—	—	—	e)	—	—	—	—	—
*Switzerland . . . .	...	45	50	...	...	—	—	99	—	—	98	—	—	—	—	—	96
Czechoslovakia . .	2,027	2,042	2,081	99.3	97.4	2.3	—	—	2.7	—	—	—	—	—	—	—	3.1
Total Europe . . .	26,551	27,235	28,022	97.5	94.7	—	—	—	—	—	—	—	—	—	—	—	—
U. S. S. R.	35,149	42,492	43,286	82.7	81.2	—	—	—	—	—	—	—	—	—	—	—	—
Canada 4)	12,905	12,871	12,971	100.3	99.5	—	—	95	—	—	95	—	—	—	—	—	74
United States 4) .	41,994	39,722	40,230	105.7	104.4	—	—	78.1	—	—	78.9	80.1	—	—	—	—	—
Total America . .	54,899	52,593	53,201	104.4	103.2	—	—	—	—	—	—	—	—	—	—	—	—
Syria and Lebanon	28	27	42	102.3	66.6	...	...	...	—	100	—	—	—	—	—	—	—
Algeria	497	557	605	89.1	82.2	—	—	80	—	100	—	—	—	—	—	—	80
French Morocco . .	63	60	82	106.0	77.2	—	—	—	—	—	—	—	—	—	—	—	—
Tunis	86	67	109	129.6	79.3	...	...	...	120	—	—	—	—	—	—	—	—
Total Africa . . .	646	684	796	94.6	81.4	—	—	—	—	—	—	—	—	—	—	—	—
GRAND TOTAL. (m)	82,124	80,539	82,061	102.0	100.1	—	—	—	—	—	—	—	—	—	—	—	—
(n)	117,273	123,031	125,347	95.3	93.6	—	—	—	—	—	—	—	—	—	—	—	—

*) Countries not included in the totals. — †) See explanation according to the various systems, page 431. — a) Above the average. — b) Average. — c) Below the average. — d) Very good. — e) Good. — f) Average. — g) Bad. — m) Not including U. S. S. R. — n) Including U. S. S. R. — s) Spring crops. — w) Winter crops. — 1) At the middle of the previous month. — 2) Average 1928-29 and 1929-30. — 3) Including spelt and meslin. — 4) The area for 1931-32 is that which it is anticipated will be harvested; for previous years the figures refer to the area harvested. — 5) Including meslin.

Finland: The meslin area in 1932 is estimated at 37,000 acres against 23,000 in 1931 and 25,000 on the average for the preceding quinquennium; percentages: 157.9 and 147.4. The corresponding figures of production are: 464,000 centals (800,000 bushels) compared with 288,000 (497,000) and 323,000 (557,000); percentages: 160.9 and 143.7. Crop condition on 1 July was 97.

France: Crop prospects are very irregular. In the South and Southwest they are distinctly mediocre; in Provence the first threshings of hard wheat show a very poor specific gravity; much wheat is laid and on the whole yields will be below average. In the Centre and West appearance of wheat is average while in the Paris basin and throughout the North it is generally good; it must be noted, however, that fields laid by the storms or by trampling are not infrequent and there are some cases of rust; on the other hand, if the favourable weather that has prevailed in these areas between the end of June and the middle of July has restored a situation that was somewhat compromised, the temperature changes accompanying the storms and the short and violent rains of mid-July caused some fears of scorching and shedding. In the East the situation is analogous.

An estimate of production is very difficult, the harvest not being general in the chief cereal regions before the end of July and the beginning of August. Some trade estimates give a crop of 190 million centals (310 million bushels), others one of up to 200 (330) millions, but they seem too optimistic even on the hypothesis that stormy, hot and wet weather will not further compromise ripening and that there will be no scorching, shedding or rust. If account is taken of the extension of area the figure of 150 (300) million seems the most probable maximum.

Amongst other cereals winter-barley and barley appear to be satisfactory in yield but quality is very unequal; oats are very irregular but on the whole production seems to be a good average. Rye is generally fairly good.

Great Britain and Northern Ireland: June was dry and sunny throughout the area save for a few days at the end of the month. The warmer weather stimulated the growth of grain crops, which had suffered from the wet and cold conditions of the previous month. In England and Wales autumn wheat was usually a good plant, but spring sowings were less satisfactory and on the whole yields were expected to be rather under average. Barley yields in England and Wales were also expected to be rather below average while in Scotland the crop had suffered somewhat from lack of moisture. The yield of oats in England and Wales was expected to be below average.

Hungary: From 21 June to 6 July the weather was characterised by low temperatures at first; rising later, and, in the greater part of the country, by lack of precipitation. Toward the end of the period under consideration ripening made rapid progress thanks to the high temperatures. In some areas scorching is feared. Harvesting of wheat has begun in certain regions, especially on sandy soils. The straw is generally short but the ears are free from disease and well-filled and the grain is of good quality.

The rye harvest is in progress. The straw is generally of average length; the ears are short in several districts and there are gaps here and there but the grain is well developed. The winter-barley harvest is almost over and that of spring barley is making good progress; the straw of the latter is short in some districts but the ears are well-developed and the grain free of disease.

Crop condition of oats has improved; sowings are, however, poorly developed and sparse. Grain formation is not satisfactory and scorching is feared.

A special Government report published on 15 July, making due allowance for the sporadic but considerable damage to wheat at the ripening period, reduces the estimate of production this year to 36,486,626 centals (60,809,830 bushels) compared with the 39,683,340 centals (66,137,580 bushels) estimated on 6 July. On the other hand the production estimates for rye have been somewhat increased while those for barley and oats have undergone little change.

Italy: In the first half of June the excessively wet weather almost everywhere favoured the spread of rust on wheat. In the Centre and South harvesting of early varieties was begun and good yields were obtained; harvesting of barley and oats progressed everywhere. In the second half of the month harvesting of early varieties of wheat continued and in some districts that of late varieties was accelerated in order to restrict rust damage, which is widespread. Harvesting of minor cereals continues regularly: in the South and the Islands oats gave good yields.

Latvia: June was in general a cool month; temperatures were especially low from the 10th to the 20th and some night frosts occurred; the temperature did not rise until towards the end of the month. The quantity of precipitation during June was minimum and in some regions represented only 25 % of the normal quantity. Crop condition of winter wheat on July 1 was average in 37.6 % of correspondents' replies, above the average in 55.2 % and below it in 7.2 %. The corresponding figures for rye are: 31.8 %; 64.3 % and 3.9 %; for barley, 50.6 %; 24.2 % and 25.2 %.

Lithuania: Despite the fairly cool and rainy weather in June the weather conditions have favoured the growth of spring crops. The area under meslin in 1932 is estimated at 251,000 acres compared with 212,000 last year and 267,000 on the average for the preceding quinquennium. Percentages: 118.0 and 93.7. Crop condition on 1 July was 113.

Luxemburg: The growth of cereals is normal.

Norway: Crop condition of meslin on 1 July was 99 against 91 on 1 July 1931.

Netherlands: Towards the middle of June the crop condition of winter cereals varied from good to very good and those of wheat and spring barley were good whereas the aspect of the oat crop was only fairly good. In the province of Zeeland cereals are in danger of lodging if heavy rains fall. Some rust is also reported.

Poland: According to 4,926 reports of agricultural correspondents of the Central Office of Statistics during the period 15 May to 15 June, the quantity of rainfall was quite sufficient; soil moisture at this period was considered to be excessive by 19 % of the correspondents and insufficient by 24 %. Inadequacy of moisture was emphasized especially by correspondents of the departments of Wilno, Volhynia, Stanislawov and Tarnopol. As regards sunshine and warmth, 58 % of the correspondents enst stated that there had been sufficient sunshine and 43 % that warmth was sufficient. The other reports emphasized inadequacy of warmth and sunshine. The greatest warmth was noted in the departments of Wilno, Volhynia, Tarnopol and Poznanian. Crop condition of cereals on 15 June had considerably improved as compared with 15 May and was above the average; with the exception of winter wheat it was also better than on 15 June of last year.

According to the information published by the State Meteorological Institute, the weather during the third and fourth weeks of June was rather cool and temperatures did not rise until towards the end of the month. Precipitation was rather abundant during the third week nearly everywhere whereas during the fourth week the predominantly dry weather favoured the growth of spring cereals which, in some regions, were already suffering from excessive moisture. Towards the end of June winter rye had begun to ripen in the south-east of the country.

Rumania: During the first half of June the weather was in general very favourable to the crops. Except in some regions of Bessarabia, frequent rains have fallen throughout the country so that the vegetation has received sufficient water for normal growth.

Crop conditions of wheat and winter rye are mediocre in Moldavia, the Danube valley and some regions of the Theiss valley; the situation of these crops was, on the contrary, fairly good in the other regions of the country and gave rise to forecasts of a good crop. Winter barley has everywhere grown only little. Spring cereal sowings have been effected in delay and consequently in various districts the areas under these crops are smaller than last year. Despite the delay the crops have grown under favourable conditions; crop condition of spring barley is especially very satisfactory.

Switzerland: The prevalently warm and stormy weather in June was extremely favourable for the growth of all crops. The condition of winter cereals towards the beginning of July visibly improved compared with the previous month but there are still some fields in which winter damage has not been completely compensated for. In the various regions cereals have also suffered from heavy storm rains in the last few weeks which, in many places, caused lodging, particularly of rye. The aspect of spring cereals is in general good, promising good crops. Only the oat crop has, in certain areas, become infested with weeds, as a result of the lateness of sowing, and delayed in growth.

Czechoslovakia: After a severe drought lasting all May the abundant rains in June, despite the damage they caused in some places, greatly favoured cereals and crop condition on 1 July, particularly of winter wheat, was considerably better than in the preceding month. On the whole crop condition of cereals on 1 July was average to good.

Yugoslavia: According to a communication of the Statistical Section of the Ministry of Agriculture, weather conditions during the latter half of June were variable but on the whole fairly favourable to cereals in most of the country and less favourable in the Vrbas, Danube and Morava regions in which there was either excessive humidity or, on the contrary, too dry weather. In general, the moisture and warmth in nearly the whole of the country was hardly of much benefit to the crops after the frequent and abrupt changes of temperature.

The crop condition of cereals at the end of June was considered to be on the whole satisfactory; there are some large areas, however, especially in the Danube region, which is one of the most important for wheat production, in which rust and mists have caused serious damage to the crops and where production was forecast to be 25-30 % smaller than that of last year. At the end of June cutting of the barley crop had already begun.

According to official information relating to the first ten days of July the rain and warmth favoured the spreading of rust, especially in the Danube region, unfavourably influencing forecasts of both quality and quantity of the wheat crop.

U. S. S. R.: The data of area sown to spring cereals published by the Commissariat for Agriculture refer to 20 June. Though in a few districts and for some crops sowings at the date indicated were not yet completed the data may, when account is taken of development from 20 June to the end of the season in preceding years, be considered as practically final and accordingly compared with those of the area harvested in 1931 and in the five years ending 1930.

With respect to the Plan the area sown to spring cereals on 20 June was 88.2 % for barley, 82.8 % for wheat and 78.0 % for oats.

According to a statement of Director of the Central Statistical Office reproduced in the Soviet press at the beginning of July, crop conditions in the period 10-20 June gave grounds for expecting a production larger than that finally ascertained for 1931. The data available for the R. S. F. S. R. (15 regions), Ukraina and White Russia (those for Transcaucasia, Central Asia and the Transbaikial regions being still unknown) indicate a production of 696 lb. per acre, that is, 18 lb. above the average of the last eight years and more than 89 lb. above that of 1931 according to the most recent estimates.

As regards individual parts of the Union in the fifteen regions of the Russian Republic a production above the average and very considerably (30 %) above that ascertained in autumn for 1931 is expected. Amongst the separate regions of the Russian Republic there may be differentiated those that were last year affected by drought: the Ural region (where production per acre is expected to be 2.5 times greater than in 1931); Siberia and the Middle Volga region (75 % greater); the Lower Volga region (70 % greater) and Bashkiria (64 % greater). In addition in the Central Blackearth region, where last year there was an average crop, a yield about 89 lb. above that of last year and 16 % above the average is expected. In Northern Caucasus a average yield is expected. Prospects are less favourable in comparison with last year in the Leningrad region, in the Western region and in Tataria.

In Ukraina a yield equal to that of last year as ascertained in autumn and coinciding approximately with the average is expected.

In White Russia crop condition on 20 June was above both that on the same date last year and the final estimate and also the average.

Taking as basis the data of area sown at 20 June according to the Commissariat for Agriculture and supplementing them with those that were not then complete for several other regions, the production of all cereals in 1932 on the basis of crop conditions on 20 June is expected to be about 8 ½ million metric tons, above the final figure for last year, so far unpublished.

A factor favourable to the realization of these expectations is considered to be the circumstance that the south-eastern regions of the European part of the Union have now passed the critical period of dry winds and are approaching the harvesting season with sowings either unaffected or little affected by these unfavourable climatic phenomena.

On 20 June the agricultural section of the Central Meteorological Office of the Commissariat for Agriculture published a forecast of the beginning of the yellow stage of ripening, which precedes complete ripening by a few days, in winter wheat. This forecast, which was first made last year and has given satisfactory results, is based on information regarding the commencement of earing and the time required on the average between earing and the yellow stage of ripening. The forecast for the current year is as follows:

(1) between 26 June and 1 July in Northern Caucasus and in Ukraina south of a line passing northwards from Odessa to a point almost halfway between Stalingrad and Saratov;

- (2) between 1 and 10 July in central Ukraina, demarcated by a line beginning almost halfway between Odessa and Kiev, passing thorough Kharkov and toward Samara;
- (3) between 11 and 15 July in the northern Ukraina and south of a line running in the direction of Penza;
- (4) after 15 July in the area beyond the line last indicated.

If during the period between the formation of the ears and ripening the weather is normal the above should coincide with the actual boundaries. Should however dry, cold or rainy weather predominate they would be deviated by some days. Weather forecasts for the current summer do not indicate any considerable deviation however from the normal course of the season.

During the third decade of June the weather was variable with a predominance of rather low temperatures in the southern and central zones and rather high temperatures in the southern and especially in the south-eastern zones of the European part of the Union; moderate rains occurred in this period in the western and central parts of the European area, in Ukraina and in Northern Caucasus and small amounts in certain districts of the Volga. In the other parts of the Union the weather was dry.

In Central Asia the cereal harvest had already commenced toward the end of June and in Northern Caucasus, the Crimea and southern Ukraina at the beginning of July.

On 5 July a governmental decree on this year's harvest was published insisting on better organization, especially with a view to preventing the loss of grain experienced last year and at the same time giving instructions for the creation of greater interest on the part of individual members of the *kolkhozi* in the carrying out of the harvest.

In some districts where the harvest had already commenced or was about to commence insufficient means of traction, especially animal, are reported; the factories have not yet supplied the number of machines promised and the repair of machines already in use is not proceeding with the intensity laid down in the government programme.

Canada: High temperatures and scattered rainfall during the week ended on June 30 generally greatly improved grain crops in the western provinces but rain was needed in some large areas of all three provinces. The cutworm menace was over but grasshoppers were still dangerous, especially to coarse grains in Manitoba. Hail caused considerable local damage in Saskatchewan and Alberta. Over 75 % of the western wheat acreage improved in condition during June.

In the Maritime Provinces, eastern Canada and British Columbia crop prospects declined generally during the month and condition in these areas was below the average; in western Ontario, however, winter wheat was more promising.

According to a cable of July 5 from the Canadian Government western grain crops entered the critical month of July with prospects approaching average but an increasing number of districts reported inadequate moisture supplies. Prospects at the beginning of July showed the usual increased variability compared with early June but a great improvement had taken place compared with 1931. The heaviest rains of the past week favoured crops in most of Saskatchewan, southern and western Manitoba and southern Alberta.

The grasshoppers were migrating but wheat crops were well enough advanced to withstand their attacks. Wheat stem maggots and webworms were prevalent. A slight infection of black stem rust and leaf rust was reported in Manitoba. Further hailstorms caused heavy local damage in all three Prairie Provinces.

The areas which had insufficient soil moisture reserves and therefore needed frequent rains were the following: eastern and south-western Manitoba, south-central and south-western Saskatchewan and the south-eastern, east-central and Peace River dis-

tricts of Alberta. A later telegram of July 12 stated that during the past two weeks wheat had made good progress and was earing. Saskatchewan had considerable moisture but areas in central and south-western parts of the province still needed rain. In Alberta the areas affected by drought had rains and only the Peace River country received insufficient quantities.

Manitoba had good rains in central and western areas. The rapid growth of the crops and the cool showery weather reduced the damage by grasshoppers in Saskatchewan and Manitoba but new outbreaks were reported in southern Alberta.

Substantial rains fell in the same period in the Maritime Provinces, Quebec and Ontario and materially improved cereals. Crop prospects in Quebec were below the normal. Harvesting of winter wheat commenced in Ontario and a good yield was anticipated.

During the week ended on 19 July still greater variation in western crop prospects became evident. In southern and central Saskatchewan and southern and extreme northwestern Alberta the crops are suffering from drought. Improved conditions are, however, reported in Manitoba and prospects are well maintained in northern, east-central and west-central Saskatchewan and in central Alberta. The wheat crop has nearly all headed and cutting should begin at about the beginning of August. Root rot is prevalent in Saskatchewan; further heavy hail damage is reported locally but rust is present only in traces.

The rye crop will be harvested in the next two weeks. Grasshoppers are still damaging coarse grains.

United States: In the last week of June harvesting of winter wheat in the Ohio Valley advanced northward to north-central Illinois with threshing begun in more southern sections; in the eastern part of the area condition was poor to fair with most of the crop ripe but heads reported poorly filled. Harvest was nearly completed in Missouri and cutting was about to begin in Iowa.

In Kansas, half to over three quarters of the crop had been cut in the south-central and south-east, with harvest well started in the northeast. Cutting was practically completed in Texas, with threshing progressing. Rain caused some delay in Oklahoma.

In Nebraska, grains were ripening and filling fairly well but much was on short straw. In the Northwest conditions continued largely favourable but rain was needed in parts. In the East, wheat was being harvested northward to southeastern Pennsylvania.

In the spring wheat region crop condition improved during the week; good advance continued with the crop largely headed and the early-planted grain filling well in North Dakota.

In the western Ohio Valley oats made better advance after the rains but they still varied considerably, especially in the southwest where much was on short straw.

Rye was mostly ripe in South Dakota and cutting was progressing in Iowa.

In the first week of July rain delayed the harvesting and threshing of winter wheat but in the second week of the month the weather was generally favourable and harvesting was completed in some parts.

On 6 July crop condition of spring wheat was reported to vary from good to excellent and on 13 July was good.

According to a cable of 21 July spring wheat had begun to ripen; slight damage is reported due to lack of rain.

Cyprus: Toward the end of June harvesting of wheat was well advanced. Production, although somewhat better than anticipated, was very much below the average. Quality of grain was fairly good but production of straw was very low. Threshing of barley was in full swing; production was very much under the average and the yield of straw was greatly reduced. A poor crop of oats has been harvested.

Japan: According to the forecast of 20 May, the production of wheat, barley and naked barley in 38 Prefectures responsible for almost the entire crop, shows increases of 5.2 %, 4.7 % and 4.1 % respectively over last year's actual production. The increases in area are only 0.9 %, 0.05 % and 0.4 % respectively.

Palestine: Harvesting of wheat and barley was completed in June and threshing was begun. The grain from the hill districts and the southern areas is of poor quality and shrivelled.

Turkey: After a long period of excessive heat during the latter half of May and the first half of June, the weather changed and since mid-June has been characterised by fairly heavy rains throughout practically the whole of the country. In several provinces the rain was generally beneficial, particularly to cereals. In a few places, however, the heaviness of the rain caused slight damage. Forecasts of wheat production are satisfactory and it is hoped to obtain a larger crop than last year.

Algeria: The late rains in the latter half of May and in June greatly improved crop condition. The dry, warm weather which prevailed at the end of June and in the first week of July, favoured harvesting and threshing. The wheat crop, especially that of the hard variety, apparently gave complete satisfaction whereas yields of barley seemed to be decidedly deficient. In any case, the results obtained in the present season are better than those for all cereals last year.

French Morocco: Cutting has been finished. Yields are generally a good average quality and specific weight are particularly satisfactory.

Tunisia: Weather has been generally favourable to growth and to harvesting and yields are good. Some local accidents, hail and rust, have caused losses.

Union of South Africa: The general droughty conditions were broken in the Cape Western Province by soaking rains during May and ploughing and planting of winter crops, though late, was actively continued. In the inland areas of the Cape Province, however, and in the Orange Free State very little winter crops could be sown, while in Natal and Transvaal as a result of the low rainfall last summer springs, dams and streams were very low and the wheat crop will be mainly dependent on future precipitation.

Australia (Telegram of 14 July): The weather has been generally very favourable to sowings and germination of wheat in Western Australia, South Australia and Victoria. In New South Wales more moisture is wanted. Crop condition is good to excellent in South Australia and Victoria, good in Western Australia and fair to good in New South Wales.

MAIZE

The information on the maize crop reaching the Institute up to the middle of July was still very incomplete and insufficient for a precise estimate of the area in the northern hemisphere. Amongst the large European producers data is still lacking for Rumania, Yugoslavia and Italy. For Rumania, though the exact figure for area is not known officially, an increase is expected, over the area for last year, which was 11,749,000 acres (final estimate). Hungary, Bulgaria and Czechoslovakia publish data for area slightly above those of last year and also above the five-year average, while the first estimate of France is 5.7 % below the average. In all probability there will be an increase in the total maize area in Europe (excluding the U. S. S. R.) but nothing can be safely asserted until the publication of the estimates for the three principal European producing countries above indicated.

As regards the maize area in the northern hemisphere as a whole, given the considerable increase (over 3 ½ million acres) in the area in the United States with respect to the already very high figure of last year, it may be expected that it will somewhat exceed the 1931 area. The increase recorded in the United States will in fact largely compensate for the decrease of about 657,000 acres in the U. S. S. R., and the less important decreases in France and Canada.

Information regarding crop condition is for the most part favourable in all the producing countries.

In the majority of the European countries sowing was delayed by the long winter and cold spring. The abundant rains in June and the temperatures for the most part sufficient have hastened development and in the middle of July crop prospects were everywhere good.

As this number goes to press the first estimates of the crop in the United States and Bulgaria are known while from Algeria the second estimate is available. The respective data are as follows:

Production of maize

COUNTRIES	MEASURES	1932	1931	MEAN 1926-30	PERCENT 1932	
					1932 = 100	Mean = 100
United States	(000 centals)	1,678,000	1,431,843	1,441,334	117.2	116.4
	(000 bushels)	2,996,000	2,556,863	2,573,817		
Bulgaria	(000 centals)	18,387	21,983	15,239	83.6	120.7
	(000 bushels)	32,833	39,256	27,212		
Algeria	(000 centals)	137	133	144	102.7	94.9
	(000 bushels)	244	238	257		

The estimate for the United States is made on the basis of crop condition on 1 July and is consequently subject to further modifications according to the subsequent weather conditions. In the first half of July weather favoured development.

* * *

Austria: During June lack of warmth hindered the growth of maize. At the beginning of July cleaning had progressed fairly well.

France: Maize sowings have been delayed by bad weather in the Southwest; cleaning was also hindered but on the whole the maize crop situation is satisfactory. The same holds true of the East although growth there was restricted by drought.

Hungary: At the beginning of the second decade of July the first hoeing had been completed. More moisture was wanted for further development.

Italy: Development is generally good.

Rumania: The area sown to maize this year is larger than that of last year because land has been sown to this crop which was not utilised for other cereals due to the long winter and floods at the beginning of the spring. The maize sowings have been effected late and in some regions were not finished until the end of May.

The crop is progressing in growth under satisfactory conditions.

Yugoslavia: Weather conditions in June were favourable for the growth of maize throughout practically the whole of the country and crop forecasts at the beginning of July were good.

U. S. S. R.: The area sown to maize this year reaches 86.1 % of that planned. In the two principal centres of maize production, namely, the Ukraine and North Caucasus, covering about four-fifths of the total maize area of the Union, frequent, and in some regions heavy, rains fell in June.

United States: In the last week of June, conditions were decidedly favourable for the maize crop. Growth was reported good to excellent rather generally over the principal producing area with decidedly beneficial rains in the Ohio Valley and Middle Atlantic States. Sufficient soil moisture for present needs was maintained to the westward and temperatures were mostly above normal, though coolness and dryness were unfavourable from the Lake region eastward.

In Illinois much maize has been laid by. In Iowa the crop averages hip-high with some too tall to cultivate in nearly all parts of the State and, in general, considerably further advanced than in an average year. In the first week of July the growth of maize was good and on the 13th crop condition was reported to be good.

According to a cable of 21 July rain was needed in the maize belt.

Surinam: Due to unfavourable weather maize production was small.

Palestine: The irrigated crops of the Emek are fair. Crops under dry cultivation will be considerably below average.

Algeria: The production of maize in 1932 is estimated at 137,000 centals (244,000 bushels) compared with 133,000 (238,000) in 1931 and 144,000 (257,000) on the average for the period 1926-1930; percentages: 102.7 and 94.9.

French Morocco: The crop condition of maize is satisfactory.

Union of South Africa: The fourth preliminary estimate of production in 1931-32 shows a further reduction to 32,466,000 centals (57,975,000 bushels), which is now only 1.4 % above the poor crop of 32,016,000 centals (57,171,000 bushels) of 1930-31 and 9.3 % below the average of the five years ending 1929-30, which was 35,776,000 centals (63,885,000 bushels).

Maize.

COUNTRIES	AREA					CROP CONDITION (†)								
	1932	1931	Average 1926 to 1930	% 1932		1-VII-1932			1-VI-1932			1-VII-1931		
	Thousand acres			1931 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria		152	145	...	...	2.6	—	—	2.5	—	—	2.3	—	—
Bulgaria	1,710	1,676	1,693	102.0	101.0	140	—	—	140	—	—	120	—	—
Spain	1,082	1,053	1,044	102.8	103.7	e)	—	—	—	—	—	—	—	—
France	782	830	843	94.3	92.8	—	—	—	66	—	—	—	—	—
Hungary	2,877	2,749	2,677	104.7	107.5	2.5	—	—	—	—	—	—	—	—
Rumania . . . . .	...	11,749	10,851	...	...	e)	—	—	—	—	—	—	—	—
Czechoslovakia . .	355	347	349	102.3	101.8	—	—	—	—	—	—	—	—	—
U. S. S. R.	9,084	9,741	8,483	93.3	107.1	—	—	—	—	—	—	—	—	—
Canada	125	131	159	95.6	78.8	—	—	90	—	—	—	—	—	99
United States . . .	108,609	104,970	99,449	103.5	109.2	84.9	—	—	—	—	—	83.7	—	—
Algeria	17	24	24	69.7	68.6	—	100	—	—	100	—	—	—	80

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 431. —

The droughty conditions at the close of the season and to a less extent stalk-borer are responsible for the reduced expectations. Considerable loss of marketable grain has been caused in Natal by dry-rot (*Diplodia zeae*); crops in some areas show as much as 50 % infection while 20-25 % is taken as average. Native crops are particularly small. Owing to the prevailing distress a very much larger percentage of the crop than usual has been used before reaching maturity.

According to the various Schools of Agriculture in the maize-producing areas it is unlikely that there has been any marked change this season in the relative production of white and yellow maize. In Natal yellow varieties are becoming more and more popular for stock feed but the percentage of white maize is much the same as last year.

RICE

Bulgaria: On an area of 15,600 acres, exceeding that of last year by 9 % and falling below the average of 1926-30 by 15.1 %, production is forecast at 278,000 centals (618,000 bushels) of rough rice (4.2 % below 1931 and 20.5 % below the average of 1926-30).

Italy: In June weeding was effected regularly; growth is good.

United States: In the week ended on June 30, rice was doing very well in Louisiana. The rice area this year is estimated at 845,000 acres compared with 970,000

in 1931 and 962,000 on the average for 1926-30; percentages: 87.1 and 87.8. On the basis of crop condition on July 1, production is estimated at 38,000,000 bushels (17,100,000 centals) against 45,014,000 (20,256,000) last year and 43,115,000 (19,402,000), the five year average; percentages: 84.4 and 88.1.

Crop condition of rice on 1 July was 85.7 compared with 84.1 on 1 July 1931.

Surinam: Despite the rainy weather only a little rice was planted in the first quarter of 1932. The humidity caused difficulties in drying and milling of the rice.

Korea: The area under rice in 1931-32 is estimated at 4,105,000 acres against 3,970,000 in the season 1930-31 and 3,885,000 on the average of the preceding five seasons (103.4 % and 105.7 %). The respective figures for production of rough rice are: 63,283,000 centals (140,625,000 bushels); 76,746,000 (170,543,000) and 59,472,000 (132,158,000); percentages: 82.5 and 106.4.

India: In the latter half of June heavy and sometimes excessive rains fell in North Bengal and light, seasonable rains in the remainder of the province. The preparation of land for winter paddy continued and autumn paddy was being weeded. In the period June 6 to June 20 light to moderate rains fell in some districts of Bihar and Orissa and sowing of paddy was begun. In the following week to June 27 rain was general and heavy in three districts; sowing of paddy continued. Rainfall in Madras was heavy on the west coast during most of June and moderate in the Circars in the week ended on June 25.

Indochina: The production of Cambodia, the first estimate of which is now known for the season 1931-32, is extremely small; so small a crop has not been recorded since 1923-24 and 1922-23 where circumstances permitted only about one million acres to be sown whereas this year's area, although 4.8 % smaller than that of last year and 1.5 % below the average of 1925-26 to 1929-30, reaches 1,520,000 acres.

Production amounts to nearly 10,699,000 centals (23,775,000 bushels), showing a decrease of 39.3 % compared with that of last year (17,637,000 centals; 39,193,000 bushels) and of 34.1 % compared with the average of the previous five years (16,227,000 centals; 36,059,000 bushels).

Total production in Indo-China, amounting to 125,917,000 centals (279,811,000 bushels) is consequently 2.9 % smaller than that of last year (129,672,000; 288,154,000) and 5.4 % below the five-year average (133,071,000) (295,707,000). On the whole, except in Cambodia, yields have been fairly good and production has been limited by the reduction of the area planted in Tonkin, in Annam and in Cochin-China due to unfavourable conditions; the total rice area in Indo-China is, in fact, at 12,926,000 acres, 9.9 % smaller than that of last season (14,344,000 acres) and 0.8 % below the five-year average (13,031,000 acres).

British Malaya: The 1931-32 crop was generally good and in some areas, as in Kedah, the principal producing State, appears to have been the heaviest on record, surpassing even the good crop of the previous season.

In May weather varied considerably in different parts of the country. On the western side from Province Wellesley to Malacca conditions were on the whole fairly dry. In Kedah there were showers. On the eastern side the plain of Kelantan, which has the largest area under padi, was dry.

Preparation of the land for the coming crop was commenced in May in the north of Kedah, in Krian and the central and southern Districts of Perak. In most of the other States the fields were in various stages of preparation or transplanting was in progress. Almost everywhere there were indications that the area planted with padi for 1932-33 would be considerably extended both by the utilisation of all padi land formerly uncultivated and by the addition of new areas suitable for the crop. Distribution of seed of pure strains has taken place to a moderate extent in all States.

Turkey: The Government is giving more and more encouragement to rice planters, providing them with seed. A considerable extension of the rice acreage is anticipated.

POTATOES

Germany: Progress was good in June. At the end of the month flowering took place and here and there lifting of early varieties was effected. Crop condition of late varieties is normal.

Austria: At the beginning of July potatoes had grown strongly and were mostly in flower. The tubers of the early varieties are well developed, especially in the valleys. Lifting has begun in places. The foliage of late varieties was underdeveloped. In the regions which have been benefited by abundant precipitation, the crops are infested with weeds. In the valleys the earthing-up of potatoes has been largely finished.

Belgium: The warm weather in the second half of June encouraged growth of roots and potatoes, which are in fine condition, especially where good seed was used. The crops have been earthed up; lifting of early varieties has begun; yields are good, about 133.8 cents (223.0 short tons) per acre.

Spain: Progress has been good, without damage from weather or cryptogams. Though numerical data are not yet available, the area cultivated appears to be quite considerably larger than last year.

Production of potatoes.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1931 = 100	Average = 100
	Thousand cents			Thousand bushels			%	%
Belgium	77,704	78,857	74,142	129,503	131,425	123,567	98.5	104.8
Bulgaria	1,819	1,392	946	3,031	2,320	1,576	130.7	192.4
Malta	564	670	636	941	1,117	1,060	84.2	88.7
Netherlands	66,690	60,322	72,753	111,148	100,535	121,253	110.6	91.7
United States	226,800	225,749	213,920	378,000	376,248	356,526	100.5	106.0
Algeria	1,102	949	918	1,837	1,582	1,530	116.2	120.0

France: June and the first half of July were on the whole favourable to the potato crops in most regions, with the result that crop condition, which on June 1 was 61 and considerably inferior to that on June 1, 1931 (70), subsequently improved. Doryphora has spread this year.

Great Britain and Northern Ireland: The greater part of June was dry and sunny and the warmer weather brought a considerable improvement in vegetation. In England and Wales the early crop is later than usual and prospects were moderate; the main crop, though rather backward, was generally fairly satisfactory and average yields were expected.

Hungary: On about 20 July potatoes were flowering. The foliage was fairly abundant. At this period the need for rain began to be felt. The early varieties have reached maturity.

Italy: In the latter half of June lifting continued.

Lithuania: Despite the fairly cool and rainy weather in June the weather has favoured the growth of root crops.

Luxemburg: Potatoes are backward in growth compared with the normal year.

Potatoes.

COUNTRIES	AREA					CROP CONDITION (†)								
	1932	1931	Average 1926 to 1930	% 1932										
				1931 = 100	Aver. = 100	1-VII-1932			1-VI-1932			1-VII-1931		
1,000 acres						a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany . . . {s)	619	598	592	103.5	104.6	2.7	—	—	2.7	—	—	2.6	—	—
Austria . . . {t)	...	6,381	6,390	...	...	2.7	—	—	2.9	—	—	2.6	—	—
Belgium . . . s)	...	61	50	...	...	2.0	—	—	2.4	—	—	2.5	—	—
Finland . . .	435	425	410	102.4	106.3	e)	—	—	—	—	—	—	—	—
Bulgaria . . .	37	31	28	120.7	134.3	150	—	—	150	—	—	150	—	—
France . . .	192	174	173	110.5	111.1	—	f)	—	—	—	—	—	f)	—
Hungary . . .	3,442	3,474	3,589	99.1	95.9	—	—	—	—	—	—	61	—	—
Lithuania . . .	729	710	663	102.8	110.0	2.4	—	—	—	—	—	—	—	—
Luxemburg . . .	427	409	347	104.4	123.0	3.5	—	—	—	—	—	3.5	—	—
Malta . . .	40	41	40	96.0	99.0	2.6	—	—	2.6	—	—	2.5	—	—
Norway . . .	7	7	7	108.1	100.3	—	—	100	—	—	—	—	—	—
Netherlands . . .	...	116	120	...	...	—	100	63	—	—	—	—	—	92
Poland . . .	434	406	428	107.1	101.5	—	1)	—	1)	65	—	1)	70	—
Switzerland . . .	...	6,716	6,250	...	...	2)	3.4	—	—	—	—	—	3.4	—
Czechoslovakia . . .	...	113	119	...	...	—	100	—	—	—	98	103	—	—
U. S. S. R. . . .	1,787	1,778	1,772	100.5	100.9	2.5	—	—	2.6	—	—	2.5	—	—
Canada . . .	13,732	15,104	13,671	—	—	—	—	—	—	—	—	—	—	—
United States . . .	544	584	562	93.1	96.8	—	—	96	—	—	—	—	—	95
Algeria . . .	3,411	3,382	3,097	100.9	110.1	—	—	81.6	—	—	—	—	—	83.5
	31	24	25	127.3	122.0	—	100	—	—	100	—	—	—	80

(†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 431. — s) Early potatoes. — t) Late potatoes. — 1) Middle of preceding month. — 2) To June, 15. — 3) Area sown on 20th June 1932.

Netherlands: Towards the middle of June potato crops were in many cases irregular. The crop condition of potatoes for consumption was fairly good to good and that of potatoes for starch manufacture, from mediocre to fairly good. These conditions are due to the fact that heavy rains caused much damage, rotting many of the tubers

and necessitating replanting. The area under potatoes for starch manufacture, although a little larger than that of last year, is still, for economic reasons, much below that of the preceding quinquennium.

Switzerland: Growth of the potato crop is satisfactory and, on the average, promises a normal crop.

Canada: According to a cable of July 11 from the Canadian Government, a radical decrease is indicated in the commercial potato acreage. During June crop prospects declined generally in the Maritime Provinces, Eastern Canada and British Columbia. In the first two weeks of July, however, substantial rains in the Maritime Provinces, Quebec and Ontario materially improved the crops. The outlook for crops in Quebec was, however, below the normal. In the Prairie Provinces crops made good progress.

Cyprus: Toward the end of June lifting of the new crop was practically over and a very good crop had been harvested. Considerable activity was recorded in the export trade with the United Kingdom and Palestine.

Palestine: Harvesting was completed in June; production is greatly reduced.

SUGAR

The weather in the European beet areas generally has been favourable to the growth of the crop though in some areas, as in parts of Germany and in Moravia, Slovakia, lower Austria, the north of France and Hungary, more precipitation is required as a consequence of the previously very dry weather. Field operations have proceeded satisfactorily and over most of the area the second hoeing has been completed, though rain caused some delay in Bohemia, and in parts of Ukraina. Beet fly is serious in some parts of Germany, in Belgium, in parts of France, in the Netherlands and in Ukraina.

The German beet areas had sunny warm weather in the first fortnight of July and development of the roots was reported to be good in the principal areas except Pomerania. In Saxony the second hoeing had been ended and the plants were covering the ground; good rains were, however, urgently wanted in certain districts and beet fly was causing severe damage in some parts of the Magdeburg area. Reports from Silesia were favourable while in Hannover conditions were generally satisfactory though fly was present and rains were urgently wanted in some parts. South Germany had had heavy rainfall in some areas. In Pomerania late-sown beet was suffering severely from drought and the second generation of beet fly was appearing. In the Rhineland the beet was making up for lost time. In Germany as a whole the official figure of crop condition on 1 July, that is, a week previously, was the same as last year at the same date, that is, a little above the average.

In Czechoslovakia the crop condition as reported by 121 factories for the week ending 30 June was very good in 9 % of the cases, good in 69 %, satisfactory in 18 % and bad in 4 %. proportions rather better than at the same

date last year. The leaves were covering the ground, but, while in Bohemia there had been a general improvement, drought and heat were worsening condition in Moravia and Slovakia.

In Poland the general heavy precipitation in June was followed by warm sunny weather in the earlier part of July and very considerable growth was reported though condition remained much below that of last year.

In the other European beet regions development in the latter part of June was generally good. Hungary had largely completed the second hoeing by the beginning of the second decade; more rain was needed. In Belgium good progress resulted from the rains in the second half of June but lost time was not entirely made up and beet fly was reported to be spreading. In France the crop had a good appearance at the middle of July, though more moisture was wanted and fly was reported. Later sowings in Great Britain were irregular and backward. In Spain and in Italy development was good. Condition of the crop in the Netherlands was fairly good in June but fly was prevalent in most districts. In Austria great improvement took place in the latter part of the month.

The latest revisions of the estimates of area under beet in Europe as a whole (excluding the U. S. S. R.) indicate a reduction of 11 % on that of last year. Amongst the signatories to the Brussels agreement the most drastic reduction has been in Germany, amounting to 29 %, the serious condition of the internal market, on which the industry preponderantly relies, being sufficient to account for this. Czechoslovakia, Poland and Hungary have reductions of 24 %, 13 % and 18 % respectively; in Yugoslavia sowings have been less than expected and are now estimated at the same level as last year. Belgium, on the other hand, estimates an increase of 3 %, its internal consumption having been fairly well maintained and export playing a relatively small part in the economy of the industry.

Amongst the non-exporting countries not adherent to the agreement a decrease of 37 % in area is estimated in Italy, this being the most drastic reduction in any country. In Spain, despite the fact that the Government does not look upon restriction with favour, there has been a decrease of 20 %. In France, Austria, Bulgaria and Switzerland the area remains practically the same as last year. An increase of 19 % has taken place in Great Britain thanks to the further Government support to the industry. Increases are also estimated in Sweden and Denmark and in the less important northern beet-growing countries.

Thus, on the whole, the prevailing economic depression, where it has not actually predominated over Government attempts to stimulate beet growing, has at least checked further increase in area in the more important producing countries, save in Great Britain, Denmark and Sweden. With a reduction of 11 % in area in Europe excluding the U. S. S. R. and given the condition of the crop up to the first part of July, it seems probable that unless a repetition of the exceptionally favourable weather of 1930 occurs production will be less than in 1931.

In the U. S. S. R. the latest estimates of sowings indicate that 97.8 % of the area planned has been put under beet. Hoeings were mostly completed

by the middle of June and at the beginning of July singling remained to be done only on a relatively small part of the *soukhozi*. At the beginning of July drier weather was still required; crop condition was on the whole about normal. It remains to be seen, however, how far the delay in sowings owing to the wet conditions in April and the consequently further shortened growing season, the hurried attempts to secure the execution of the Plan and the shortage of motive power will have an adverse effect on production. The latest reports indicate a very serious attack of beet fly and very strong weed growth. On the basis of the latest estimate of sowings the area under beet is 118.7 % of that of 1931.

In Cuba heavy precipitation favoured the growing crop in June. The depressed conditions in Oriental markets are reflected in the fact that plantings in Java for the 1934 crop are estimated at only half the area estimated to be harvested in 1933. In the countries having free access to the United States market increases in production are generally estimated. The area sown to beet in the United States shows a distinct increase on that sown in 1931 the advantages of beet as a cash crop in a time of general depression having outweighed the effects of low prices. Weather conditions have been favourable in the majority of the beet States and at the end of June, when singling had been completed, crop condition was good. As the increase in area has been mainly in the lower-yield States production of sugar is not expected, however, other things being equal, to differ greatly from that of last year. The Louisiana cane crop had made very good progress up to the end of June and, despite the severe late frost that was experienced this season, the crop is expected to be an excellent one, thanks to the very favourable weather in May and June. In Hawaii at 20 June the weather had been on the whole dry since the first week of May, a condition favouring field operations. In Puerto Rico the crop to be harvested in 1933 has been favoured by heavy precipitation. In the Philippines the growing crop has been affected in Negros by scarcity of moisture and by severe attacks of locusts. Production in the current season is also greater than originally forecast.

Amongst British Empire countries Australia expects a smaller crop in 1932-1933 than the record of the current season though one still above the average of the five years ending 1930-31, while in South Africa the new crop is expected to be larger though weather conditions have been somewhat irregular and crop condition at the end of May was 12 % below normal. The Mauritius crop will be about average, namely 5,000,000 centals (250,000 short tons).

In Formosa the weather has been generally favourable and growth of the cane to be harvested in the coming season is good.

Meanwhile further reports have come to hand concerning production in the current season. Output of Cuban mills is expected to be less than the quantity allowed by presidential decree, the total output at the end of the grinding season being estimated at about 2,600,000 long tons. The 1931-32 crop in Hawaii is placed at a figure 5.4 % above that of 1930-31, which means a record crop, while the production of Puerto Rico is now estimated to be 24 % greater than that of last year. Record crops have also been crushed in Trinidad and Barbados and a large crop is reported in Jamaica.

The outstanding fact in the Cuban situation in the past month has been the presidential decree of 11 June ordaining that the quantity of sugar exported to the United States from the 1933 crop shall be equal to the quantity actually exported to that country in 1932, less the excess over normal stocks that may exist in the Atlantic and Gulf ports of the United States on 31 December 1932 and less the carryover existing in Cuba on the same date from the quota assigned for shipment to the United States in 1932. A further decree, dated 2 July, allows 115,000 tons of the excess from the current United States quota to be transferred to the quota exportable to other countries in 1933. In addition a second decree of 2 July establishes a pool to segregate 700,000 tons of the quota exportable this year to the United States and to hold it up until a price of 1.50 cents c. and f. New York is reached and maintained for five consecutive days. On 15 June, out of the 2,628,000 tons quota for export to the United States in 1932, there remained to be shipped 1,797,000 tons. There are hopes of the American refiners being shortly compelled to come on the market

Acreege of Sugar Beet.

COUNTRIES	1932 (*)	1931	Average 1926 to 1930	% 1932	
				1931 = 100	Average = 100
	acres				%
Germany	562,348	786,002	1,039,694	71	54
Austria	107,500	106,000	69,381	101	155
Belgium	132,000	128,378	154,685	103	85
Bulgaria	29,650	29,650	46,387	100	64
Denmark	89,000	74,600	90,659	119	98
Spain	175,082	250,000	165,519	70	106
Irish Free State	13,100	5,012	14,246	258	91
Finland	6,200	4,990	5,281	124	117
France	617,200	602,526	632,999	102	97
Great Britain	280,000	234,174	223,923	119	125
Hungary	112,600	137,536	173,060	82	65
Italy	166,800	263,700	252,128	63	66
Latvia	17,000	11,100	5,200	156	333
Netherlands	99,000	92,609	152,926	107	65
Poland	321,000	367,200	516,594	87	62
Rumania	50,000	37,000	157,702	133	31
Sweden	96,990	87,170	75,428	113	131
Switzerland	3,200	3,200	3,573	100	90
Czechoslovakia	350,074	460,871	636,664	76	55
Turkey	35,062	20,000	20,750	177	169
Yugoslavia	90,740	91,200	119,440	100	76
<i>Total Europe a)</i>	<i>3,354,546</i>	<i>3,792,918</i>	<i>4,556,239</i>	<i>89</i>	<i>74</i>
U. S. S. R.	4,038,000	3,400,700	1,867,749	119	216
<i>Total Europe b)</i>	<i>7,392,546</i>	<i>7,193,618</i>	<i>6,423,988</i>	<i>103</i>	<i>115</i>
Canada	47,000	51,000	47,670	93	99
United States	813,000	713,000	700,818	114	116
<i>Total America</i>	<i>860,000</i>	<i>764,000</i>	<i>748,488</i>	<i>113</i>	<i>115</i>
GENERAL TOTALS { a) . . .	4,214,546	4,556,918	5,305,127	93	79
{ b) . . .	8,252,546	7,957,918	7,172,876	104	115

*) Approximate data.

1) Average 1929 and 1930. — a) Not including the U. S. S. R. — b) Including the U. S. S. R.

for very considerable quantities of raws with the seasonal falling-off in non-dutiable supplies but it is generally supposed that further exports to the end of 1932 will not exceed 1,000,000 tons so that the carryover would be about 800,000 tons; the quota of sugars from the 1933 crop to be exported to the United States will, therefore, when account is taken of the above-mentioned segregation and unless the price rises to 1.50 cents be only about 900,000 tons instead of the 2,531,000 tons fixed under the Chadbourne plan.

Prices have recovered from the record low level of 31 May 1932, when the equivalent of 0.57 cents per lb. Cuban 96°, c. and f. New York, was registered; on 15 July the corresponding price was 1.13 cents. That this recovery was relatively little affected by the breakdown of the earlier negotiations for the formation of the Cuban pool and by the uncertainty regarding the results of the postponed meeting of the International Sugar Council that opened at Ostende on 7 July would seem to be due to a realization of the fundamental improvement in the statistical situation of the commodity. Consumption appears to be holding up well. In twelve European countries consumption up to the end of May was, according to a private estimate, almost the same as in the corresponding period of 1930-31, the chief decline being in Germany while in Great Britain there was an increase as compared with the previous season. The figures of the Sugar Institute for distribution in the United States in the first four months of 1932 show only a slight decrease on those for 1931. The improvement in the situation is essentially due, however, to the carrying out so far of the provisions of the Brussels agreement and the further maintenance of a firm market depends on continued accord between the signatories to the convention. Though final agreement was not reached at the Ostende meeting there are strong hopes of a compromise being shortly reached on the question at issue, namely the revision of the export quotas in favour of Cuba. The settlement of export quotas and plantings for 1933 to the satisfaction of all the parties concerned is requisite if the ground gained so far is not to be lost. Surplus stocks are steadily disappearing and only the continuance of cooperation between the principal producers is required to complete the process.

C. J. R.

* * *

Germany: Beet made good progress on the whole in June. At the end of the month development was normal.

Austria: At the beginning of July the foliage of the sugar-beet crop had grown strongly. The second cleaning had progressed fairly well.

Belgium: The beet has not made up the time lost through late sowings and the cold weather of May and the beginning of June. Singling has been completed. Beet fly has spread to further areas and is being combatted with sodium fluoride.

Production of sugar beet in the season 1932 is estimated at 33,002,000 centals (1,650,000 short tons) against 32,310,000 (1,615,000) in 1931 and 32,372,000 (1,969,000) on the average for 1926-1930; percentages: 102.1 and 83.8.

Bulgaria: The production of sugar beet in the season 1932 is estimated at 5,291,000 centals (265,000 short tons) against 4,189,000 (209,000) in 1931 and 6,001,000 (300,000), the average for the preceding quinquennium; percentages: 126.3 and 88.2.

Spain: Sugar-beet is growing well and no damage by bad weather or cryptogamic disease is reported. The existence of large sugar stocks has brought about a reduction in the areas sown to beet.

France: Toward mid-July crop condition was satisfactory though it had suffered a little from drought in the north. Crop prospects are rather better than last year at the same date, crop condition on 1 June being 68, below that of 1 June 1931 by 2 points. Beet fly is, however, rather widespread in the north and the consequent losses may be not inconsiderable.

The area under beet for distillation is this year 98,000 acres compared with 89,000 last year (109.7 %) and 82,000, the average of 1926-30 (119.5 %); the area this year is 2,100 acres and 5,200 acres below the maxima of 1929 and 1930 respectively.

Great Britain and Northern Ireland: Beet where sown early appears to be a fair plant but later sowings have germinated irregularly and are backward.

Hungary: On about July 20 the second cleaning of sugar beet fields was largely completed. The crop was making satisfactory progress but needed more moisture.

Italy: Beet is developing uniformly.

Sugar Beet.

COUNTRIES	CROP CONDITION (†)								
	1st July, 1932			1st June, 1932			1st July, 1931		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany	2,9	—	—	2,7	—	—	2,9	—	—
Austria	2,7	—	—	2,9	—	—	—	—	3,1
Belgium	e)	—	—	—	—	—	e)	—	—
Bulgaria	—	—	95	—	—	95	120	—	—
Spain	e)	—	—	—	—	—	—	—	—
France	—	—	—	—	—	—	70	—	—
Hungary	2,8	—	—	68	—	—	—	—	—
Netherlands 1)	—	63	—	—	—	61	—	63	—
Poland 2)	—	—	—	3,1	—	—	3,2	—	—
Czechoslovakia	2,6	—	—	2,9	—	—	—	3,0	—
Canada	—	—	92	—	—	—	—	—	96

(†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 431. — 1) Middle of preceding month. — 2) Middle of month.

Lithuania: The area under beet is considerably larger than in 1931, being estimated at 12,000 acres against 7,100, an increase of 74,2 %.

Netherlands: Towards the middle of June the crop condition of sugar beet was fairly good. Fly has, however, appeared in most districts and, it is feared, may cause serious damage in Zeeland.

The production of sugar-beet in 1932 is estimated at 27,981,000 centals (1,399,000 short tons) against 22,690,000 (1,134,000) in 1931 and 45,961,000 (2,298,000), the average for the preceding quinquennium; percentages: 123.3 and 60.9.

Czechoslovakia: Heavy rains during June were very favourable for the growth of sugar-beet, crop condition of which considerably improved during the month.

U. S. S. R.: The area sown this year to beet is 97.8 % of that planned. In June temperatures in the first and third decades were normal while in the second they fell below normal. Rains in Ukraina and in the contiguous regions were rather frequent, in some districts hindering hoeing and singling.

Hoeing and singling are late this year especially in some parts of Ukraina. On 4 July hoeing in the *sovkhozi* was completed in 88.1 % of the trea; on 6 July in the *kolkhozi* and individualistic holdings it was completed and singling had been effected on only 29.4 % of the area.

Canada: Production of raw beet-sugar in Canada in 1931 is estimated at 1,217,000 centals (61,000 short tons) against 1,075,000 (54,000) in 1930 and 769,000 (38,000) on the average for 1925-1929; percentages: 113.2 and 158.4. The quantity of beet from which the sugar was extracted is estimated at 8,720,000 centals (436,000 short tons), exceeding that of 1930 by 9.7 % and the average of 1925-1929 by 64.5 %.

United States: At the end of June sugar-beet and sugar-cane were doing well generally.

Production of cane-sugar in 1932 is forecast at 4,360,000 centals (218,000 short tons) compared with 3,140,000 (157,000) last season and 2,536,000 (127,000), the average for 1926-30; percentages 138.9 and 171.9.

Guadeloupe: Due to the economic situation it was feared that work would be checked in certain small factories and distilleries with the risk that part of the cane crop would have to be left uncut and unground. Cane prices are very low.

Surinam: The very abundant rain in March was unfavourable to the new plantings. On the other hand, production in the first quarter of 1932 was above that of the same period of preceding years.

India: In the United Provinces the weather in mid-June was dry except for light showers; in the week ended on June 26, heavy rain fell in Sultanpur, Mirzapur and Gorakhpur but elsewhere precipitation was light to moderate. Standing crops were doing well and prospects were favourable. In the three weeks to June 27 the weather in the Punjab was mostly dry except for some light rains. Condition was average to good on irrigated areas and under average to average on those unirrigated. In the second and third weeks of June light to moderate rains fell in a few districts of Bihar and Orissa; in the fourth week, to June 27, rain was general and heavy in Angul, Bhagalpur and Purnea. Condition of the sugar-cane was good.

Java: According to the experimental station for sugar (P. O. J.) the weather during the first half of June was warm and fairly rainy. As the unripe cane was not cut, yields were high. Preparatory work for the new plantations is advancing well and plantings already effected have a good aspect.

Union of South Africa: In May crop condition averaged 12 % below normal. Rain-fall was fairly well distributed and weather was generally favourable to growth but ripening was delayed by the rains. Two mills commenced crushing during the last week in May and the remainder were expected to commence in June.

Australia (Telegram 18 July): Production of sugar-cane for 1932-33 is estimated at 85,570,000 centals (4,278,000 short tons) against 78,400,000 (3,920,000) in 1931-32 and 81,753,000 (4,088,000), the average of the five years ending 1930-31, an increase of 9.1 % and 4.7 % respectively. The corresponding figures for cane-sugar are 12,118,000 centals (606,000 short tons), 13,149,000 (657,400) and 11,365,700 (568,300), production in 1932-33 being thus 8 % below that of 1931-32 and 7 % above the mean of the five years ending 1930-31.

Hawaii: Cane-sugar production in the season 1931-32 is estimated at 20,200,000 centals (1,010,000 short tons) against 19,160,000 (958,000) in 1930-31 and 17,340,000 (867,000) on the average for the preceding five seasons; percentages: 105.4 and 116.5.

VINES

Since last month the viticultural situation in the northern hemisphere has undergone rather important changes. A very severe attack of mildew has affected the South of France causing losses that may be estimated on the basis of the information that has become available at 150-180 million Imperial gallons (180-200 million American gallons) and possibly more, if as is to be feared, the disease spreads in consequence of the circumstances favourable to its development. The other vine areas are still resisting attacks despite rather unfavourable conditions; at the middle of July they were almost free from mildew and oïdium.

In Italy the prospects are good, especially in the Centre and South, as in Piedmont and Tuscany dropping has been rather frequent in the case of young plants and American vines; the weather, too cold and rainy for the season, delayed the formation of the grapes and somewhat compromised quality in the North and Centre. Prospects of the Spanish crop are considerably improved, flowering having been abundant despite the frost damage experienced in Valencia and the losses due to phylloxera in the centre of the peninsula; a crop at least normal is expected apart from possible cryptogamic attacks.

The appearance of the French vineyards outside the southern *départements* is good despite a serious attack of cochylis in the East and East-Centre. The situation is still better in the viticultural areas of Central Europe, the Danube basin and South-eastern Europe. The fairly favourable weather has allowed vegetation to make up very largely for lost time. At the beginning of June flowering took place under good conditions in all regions and crop prospects, more or less advanced, are everywhere good, notably in Greece, Rumania and Yugoslavia.

In North Africa attacks of mildew and oïdium seem to have been checked in Algeria and though conditions have not been very favourable and eudemis

appears to have caused fairly serious losses locally, crop prospects are still fairly satisfactory. They are good in Tunisia and Morocco.

In the northern hemisphere as a whole, the grape crop of California apart, there are still prospects of a normal crop but the possibility of an extension of cryptogamic and insect attacks is still seriously to be feared, especially in France, Italy and even Spain. On the other hand quality now seems very irregular in the Mediterranean vine areas.

Trade has been generally quiet throughout June and the first half of July but prices have moved very differently in the various countries: in France there was a very marked rise stimulated by the crop losses mentioned above but in Italy prices have been weak and in Spain the firmness that persisted up to the end of June gave way to a downward tendency. Some activity is reported in Germany, Hungary and Rumania with variable price tendencies. In Czechoslovakia consumption is reported to be advancing.

Greece has just taken steps to avoid overproduction and stimulate consumption by prohibiting new plantings, establishing bounties on pulling up of vines — which have already resulted in the destruction of over 12,000 acres or 7-8% in the Corinth region — and raising the consumption tax on wines sold in towns of less than 4000 inhabitants; finally it has also planned the creation of organs for the increase of sales in the internal market and of exports. The Portuguese Government has had in view the destruction of a large quantity of wine existing in the entrepôts of Douro so as to stimulate a rise of prices, which have fallen below the cost of production. Austria has established import quotas.

As regards the southern hemisphere the information received does not indicate any substantial change in the situation reported last month: a crop very much below the normal in Australia, extraordinarily reduced in Argentina and fairly good in the Union of South Africa; the market situation is everywhere bad. The import of Australian wines into Great Britain has been satisfactorily maintained.

P. DE V.

* * *

Germany: At the beginning of July crop condition was 2.3 against 2.4 on 1 June 1932 and 2.0 at the beginning of July 1931.

Austria: At the beginning of July crop condition was 1.8, the same as on June 1 this year compared with 1.6 at the beginning of July 1931.

Bulgaria: Crop condition at the end of June was good but in some regions hail caused considerable damage.

Spain: The vines have flowered under excellent conditions and forecasts are better than in the previous month.

France: The area of vines in bearing is slightly larger (0.9%) than last year: 4,006,000 acres against 3,971,000; this is due almost exclusively to the southern area

where the increase is 2.3 % and to a slight extent also to the south-western area (0.8 %); these two areas cover 70 % of the total French vine area and furnish 50 %-60 % of the total production. In all the other areas, vine cultivation is declining, especially in the Centre (Loire vineyards) and Central Plateau.

Compared with the average area for the period 1926-29 (3,749,000 acres) the increase is 6.9 %.

On 1 June the condition of vines was 68, compared with 67 on 1 June 1931. Although this condition has only a retrospective interest, it is interesting to note that, at this date, crop condition was the same as last year in the Garonne valley and most of the large producing departments of the South and that for the whole of the southern area condition was 69 as against 66. Condition of the vines was also better in the East-central area (Burgundy, Mâconnais, Beaujolais), in the West and especially in the Centre (Loire valley), whereas it was worse in the East (Champagne, Lorraine, Alsace) except in Bordelais and the Central Plateau, where it remained almost good.

Fears of the development of mildew in the four southern *départements* with a large production have been fully realised, despite repeated applications of sulphate, as a result of the warm, damp weather which prevailed in June and until 10 July; in Hérault, which is the largest producer and furnishes in an average year nearly a fifth of the total French production, the loss estimated at the beginning of July, due to two particularly severe attacks, is between 25 % and 30 %, that is, 66-88 million Imperial gallons (79-106 million American gallons); in the Gard area the loss is relatively smaller and disease is a little less severe in the other two *départements* of Aude and the Eastern Pyrenees. As the weather at mid-July remained favourable to the development of the spores spread over the whole of the vine area, an aggravation of the disease was still feared. There were, moreover, reported frequent cases of dropping of fruit and an outbreak of eudemis.

The outbreak of mildew was much less serious in the southeastern regions, Vas and Bouch-du-Rhône and in the Rhône valley as well as in the valley of the Garonne, Bordelais and Charentes, where growth was less advanced; some centres of mildew were, however, reported in most of the vineyards of these regions. The fine weather which prevailed from mid-June to mid-July permitted the arrears in growth previously reported to be largely made up with the result that vegetation was well advanced; flowering was satisfactory and despite some damage by storms, prospects are fairly good.

In the Centre, especially in the Loire valley, flowering, which was late, took place under good conditions; cryptogamic disease and insects so far have not caused any serious damage and condition is very good.

The vines have a good appanage also in East Champagne, Lorraine and the Mâcon area of East-central Burgundy but pyralid and, in Champagne, eudemis, have developed widely and threaten to cause large losses in some places.

On the whole, this year's crop presents characteristics analogous to those of 1930 but so far the loss does not seem to have been so large. It is, in any case, certain that production will be decidedly below that of an average year such as 1931; at present it seems that it cannot exceed 1,100 million Imperial gallons (1,300 million American gallons).

Under these circumstances, prices on southern markets have risen by nearly 40 % from the beginning of June to the beginning of July; they continued to rise at the beginning of the latter month, passing from 11 to 12 francs per hectolitre degree in the first few days of the month to 13, 14 and even 15 francs the towards July 10. The rise brought about a slackening of business but a certain number of merchants are beginning to need new supplies.

Stocks of wine from the old crop are practically all in the Centre whereas in the East they are considerable; in the large producing regions of the South, larger quantities seem to have been absorbed for distillation than was anticipated. Consequently, as a result also of the delayed vintage this year, the season will and without too large a surplus.

Hungary: The crop condition of vines on about July 10 was satisfactory. Flowering had everywhere taken place under good conditions.

Italy: Growth of vines has been vigorous; anticyptogamic treatment was being continued.

Luxemburg: The vines are flowering under average conditions. Crop condition on July 1 was 2.8 compared with 2.3 on June 1 and 2.3 on July 1 1931.

Rumania: At the middle of June the crop condition of the vines was excellent.

Switzerland: Up to the beginning of July the vines were free from cryptogamic disease. Flowering was a little compromised by the rain but was in general satisfactory. Crop condition of vines on July 1 by the Institute's system was 101 against 106 on June 1 and 94 on July 1, 1931.

Yugoslavia: At the beginning of July the crop condition of vines varied from good to very good.

United States: Production of grapes in 1932 is forecast at 42,800,000 centals (2,140,000 short tons) which is 35.2 % more than was obtained in 1931 (31,660,000 centals; 1,583,000 short tons) but 12.5 % below the average of 1926-30 (48,933,000; 2,447,000). Crop condition on 1 July was 80.7 against 76.2 on 1 July 1931.

Palestine: Condition of vines on 1 July was good and yields of grapes are expected to be good throughout the country, especially in the northern areas, where they will be heavy. Early table varieties from the Emeq and the Jordan valley were already on the market in June.

Turkey: A very heavy crop of grapes is anticipated this year.

Algeria: Repeated anti-parasitic treatments and the dry, warm weather at the end of June and in the first week of July have checked cryptogamic diseases. The crop, the appearance of which remained satisfactory, promised fairly good yields.

French Morocco: The vine situation is good; no cryptogamic disease or important damage is reported. The crop promises to be large and, according to some forecasts, the vintage will yield at least a quarter more than last year.

Tunis: The crop condition of vines on 1 July was good (120) as on 1 June but a little inferior to that on 1 July, 1931 (125). Crop prospects are good, the weather having been favourable. No cryptogamic disease is reported.

The estimate of area on 31 December 1931 indicates a very large increase in the vineyard area during the last year: 99,000 acres against 87,000 (113.5 %) for the area in

bearing and 122,000 against 98,000 for the total area (123.4 %). The Tunisian vineyard acreage has doubled in the last ten years; in the course of the last four years, the increase was 63.1 %.

Australia: The information received during or after the vintage confirms the fact that the South Australian crop, which was retarded by rain and damaged by mildew as it matured, is smaller than that of last year whereas the crops of Victoria and New South Wales are very good. Quality is in general mediocre.

The Australian crop therefore appears to be very small. Notwithstanding this, producers will encounter difficulties in placing it due to their very large stocks.

OLIVES

Spain: Flowerings took place under excellent conditions and the preceding month's expectation were raised.

Italy: Growth is good.

Yugoslavia: At the beginning of July the crop condition of olives varied from average to good.

Palestine: Except in very few well-cultivated groves a poor crop must be expected, condition on 1 July being reported as very poor.

Algeria: The flowering of olives has been very abundant but reduced by the scirocco winds in the Bône and Guelma valleys of Oran. Crop condition on 1 July was average (100) the same as that of last month and the corresponding period of 1931.

French Morocco: Fruit formation was not so good as flowering with the result that crop prospects are rather reduced but still point to a crop above the average.

Tunisia: Weather in June favoured growth and crop condition on 1 July was good (120), as last month. No disease is reported.

COTTON

The first report of the United States Government on the cotton season 1932-1933, containing the estimate of area in cultivation on July 1, indicates a reduction of 9.5 % compared with the final figure of area in cultivation on July 1, 1931, of 19.1 % compared with that of 1930 and of 23.5 % compared with the record area of 1926. The area cultivated this year is, moreover, the smallest recorded since 1922. All the principal producing States show reductions varying from 3 % in Arkansas to 14 % in Georgia. In Texas and Louisiana the reduction is 10 %; in Mississippi, 8 % and in Oklahoma, 11 %.

The area indicated is below the average of private estimates and this fact gives the report a bullish character.

The weather during May in the cotton belt was in general prevalently cool and damp and favoured the boll weevil. This, together with the fact that,

according to various indications, the quantity of fertilizers used this year was 30 % to 40 % less than last year when the quantities employed were rather small, creates the temptation to forecast a fairly small production. Until now the crops have made satisfactory progress and they do not seem to be greatly in delay compared with the situation at the corresponding date of last year. The market situation is naturally difficult and prices are very low; the dominant feature is the large contraction of demand and the relatively high level of stocks. Prospects at present point to a considerable reduction of production in the new season but cannot alone justify the prediction of a stable recovery in prices in the near future.

The Egyptian Government on 15 July, more than a fortnight before the usual date, published the estimate of the cotton area in cultivation this year. The figure is 35 % smaller than that of last year and also below the minimum area fixed by the Government in its decree-law of 27 September 1931 (See October Crop Report) and much below the average of private estimates. It should be noted that the Egyptian Government publishes only one estimate of the cotton area each year so that the figure is also final. This year the weather has generally been exceptionally cool and damp and the crops have been somewhat retarded; water was, however, sufficient.

In the U. S. S. R. towards the end of June there had been sown 97 % of the area fixed by the plan. In comparison with the final figure of area in the season 1931-32, the increase in area is nearly 8 %. At this period of last year there was announced an increase of 50.5 % on the preceding season but this estimated increase was gradually reduced by later estimates to nearly 37 %. Production in the season 1931-32, according to the latest official estimates, is nearly 17 % above that of the season 1930-31. The following are final figures from the same source relating to the seasons from 1927-28 to 1931-32: Area (in thousands of acres): 1,851; 2,400; 2,608; 3,911 and 5,346 respectively; Production (in thousands of centals and, in brackets, thousands of bales): 4,751 (994); 5,611 (1,174); 6,113 (1,279); 7,597 (1,589); 8,847 (1,851).

News from India is on the whole good although in some zones drought is complained of; information on the area planted is not yet to hand as planting is still in progress.

As regards the cotton producing countries of the Mediterranean apart from Egypt, Algeria has planted only 27 % of last year's acreage, that is only 6 % of the average for the five-year period 1926-30. In the Government of Latakia and in Syria and Lebanon, a reduction of 40 % has been made. In Bulgaria the acreage planted appears to have been greatly increased. In South Africa production continues to diminish sharply.

I. S.

* * *

Bulgaria: On an area of 30,000 acres, representing 226.5 % of that of last year and 244.7 % of the average of 1926-30, production is forecast at 53,000 centals (11,100 bales) of ginned cotton. This production is 225.6 % of that of 1931 and 327.3 % of the five year average.

United States: The cotton area in cultivation on July 1 is estimated at 37,290,000 acres compared with 41,189,000 at the same date of last year and 46,145,000 on the average for 1926-30; percentages: 90.5 and 80.8.

In the last week of June conditions were rather generally favourable for cotton except for cloudy, damp weather in many places, which favoured an increase of weevil activity, and interruption of cultivation in the northwestern belt by heavy rains in the latter part of the week. In Texas the crop made satisfactory advance although shedding continued in some dry southern sections, while in Oklahoma progress and condition were mostly good with early plants setting squares.

Except in some wet areas, growth was mostly satisfactory in the central States of the belt with squares developing fast and some bloom in many areas. In some southern sections these were complaints of scarcity of squares and blooms with too much moisture favourable for weevil. In Georgia the weather was favourable and crop progress was mostly good in the Carolinas.

* In the first week of July crop progress was satisfactory but in the second week the weather was too cool and wet for growth.

According to a cable of 21 July the cotton crop was making satisfactory progress.

Cyprus: Toward the end of June germination of cotton was good but, owing to the drought, prospects were poor.

India: In the week ended on June 18 in Bombay Presidency stray showers fell in the South Deccan where rain was badly needed. Cotton sowing commenced in the Broach district. In the week ended on July 2 cotton sowing was progressing in the north of the Deccan. In the Central Provinces the weather in the fortnight ended on June 27 was hot and cloudy with light to heavy showers. In the three weeks to June 27, the weather in the Punjab was mostly dry except for some light rains. Cotton in Hissar and Sialkot was damaged by insects. Condition was average to good on irrigated areas and under average to average on those not irrigated.

French Equatorial Africa: According to an official source, production of ginned cotton is estimated at 44,000 centals (compared with 26,500 last year) from 76,000 centals (15,800 bales) of raw cotton.

In 1930-31 the cotton area was nearly 50,000 acres.

Egypt: The area sown to cotton this year is 1,135,000 acres which is 35 % smaller than that of last year and 39 % below the average for 1926-30. In June, temperatures were favourable and the cotton plants are in good condition although still slightly in delay. Irrigation water has been adequate.

The temperate weather in June assisted growth. Flowering is general in all plantations except the late ones. Formation of bolls is progressing in the early-sown plantations in Upper Egypt and in the south of the Delta. Hoeing and watering are being carried out in the general plantations. Thinning in Lower Egypt and manuring in Upper Egypt have terminated in late plantations. A slight attack of cotton worm is reported but up to the present no damage has been caused.

Anglo-Egyptian Sudan: According to the last official report from Khartum total production in 1931-32 is 986,000 centals (206,000 bales) ginned cotton, 107.5 % more than that of last season, which was 475,000 centals (99,500 bales) and 64.7 % more than the average of the five years ending 1929-30, which was 599,000 centals (125,300

bales). The area under Sakellaridis in 1931-32 is 263,000 acres against 309,000 in 1930-31 and the five-year average of 199,000; 85.1 % and 131.8 %. The corresponding figures for production of Sakellaridis are 897,000 centals (188,000 bales), 395,000 (83,000) and 522,000 (109,000); 227.7 % and 171.7 %.

The quantity of ginned cotton picked up to the end of May 1932 was 984,000 centals (206,000 bales) against 508,000 (106,000) in 1931, 660,000 (138,000) in 1930, 677,000 (142,000) in 1929 and in 524,000 (110,000) in 1928.

Union of South Africa: The crop this year is very late. The latest estimate of production (including that of Swaziland) in 1931-32 is 13,600 centals (2,850 bales), 57.2 % less than that of 1930-31 and 68.5 % less than the average of the five years ending 1929-30.

FLAX

Austria: At the beginning of July the flax crop was still under developed and overrun with weeds.

Belgium: Production of linseed in 1932 is estimated at 93,000 centals (166,000 bushels) against 182,000 (326,000) in 1931 and 279,000 (498,000) in 1926-30; percentages 51.0 and 33.4. Production of fibre is estimated at 149,000 centals against 254,000 and 542,000; percentages 58.7 and 27.5.

Flax.

COUNTRIES	AREA SOWN					CROP CONDITION (†)								
	1932	1931	Average 1926 to 1930	% 1932										
				1931 = 100	Aver = 100									
						1-VII-1932			I-VI-1932			I-VII-1931		
1,000 acres					a)	b)	c)	a)	b)	c)	a)	b)	c)	
Austria . . . . .	...	8	1)	10	...	2.6	—	—	2.6	—	—	2.6	—	—
Belgium	21	36		59	57.9	35.5	e)	—	—	—	—	—	f)	—
Bulgaria	2	2		1	98.3	281.1	150	—	—	150	—	—	120	—
Finland 2).	11	10		11	112.5	101.5	—	—	—	—	—	—	—	—
France	25	37		79	68.7	32.1	—	—	70	—	—	—	—	—
Lithuania	99	139	2)	212	71.5	45.7	—	—	97	—	—	—	103	—
Netherlands	5	16		37	29.9	13.1	3)66	—	—	—	—	3) 69	—	—
Czechoslovakia	20	23		46	87.7	43.5	—	—	—	—	—	—	—	—
U. S. S. R.	4) 7,347	7,574		4,528	—	—	—	—	—	—	—	—	—	—
Canada	559	627		511	89.1	109.3	—	—	92	—	—	—	—	46
United States	2,667	2,313		3,040	115.3	87.7	—	—	76.4	—	—	—	—	60.2
India	3,241	3,008		3,224	107.7	100.5	—	—	—	—	—	—	—	—
French Morocco	61	89		50	68.6	122.4	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table note on page 431. — 1) Average 1927 to 1930. — 2) Flax and hemp. — 3) Middle of preceding month. — 4) Area sown as at 20th June 1932.

Bulgaria: On an area of 1,730 acres representing 98.3 % of the 1931 acreage and 281.1 % of the average for the preceding quinquennium, production is forecast at 5,300 centals of fibre and 6,600 centals (11,800 bushels) of seed. The percentages in relation to 1931 and the average of the preceding quinquennium are: 300.4 and 348.3 for fibre and 61.7 and 344.8 for seed.

Hungary: During the first week of July the plants were generally short and thin in places.

Italy: The flax crop has grown well and in some provinces pulling began during the first half of June.

Netherlands: Flax fibre production in 1932 is estimated at 32,000 centals against 99,000 in 1931 and 252,000, the average for 1926-30; percentages: 31.8 and 12.5.

United States: In the week ended on June 30 flax continued to advance favourably.

On the basis of crop condition on July 1, production of linseed is estimated at 18,200,000 bushels (10,192,000 centals) against 11,018,000 (6,170,000) in 1931 and 20,452,000 (11,453,000) on the average for 1926-1930; percentages: 165.2 and 89.0.

Palestine: Threshing was completed in June.

HEMP

Bulgaria: Fibre production is estimated at 55,000 centals and that of seed at 44,000 centals.

In comparison with last year's figures and the five year average, the percentages are 131.6 and 184.2 for fibre and 120.2 and 184.0 for seed.

The area sown in the present season is 12,400 acres, that is, about one third larger than last year and the average of the preceding five years.

France: The area of the hemp crop this year is 7,400 acres compared with 8,400 last year (88.0 %) and 11,600 (64.1 %), the average of 1926-30. Hemp growing has declined continually since 1926, year in which the crop area was 13,400 acres.

Hungary: During the first week of July the hemp crop was generally short but had tillered fairly well.

Italy: During June the hemp crop grew uniformly.

U. S. S. R.: The area under hemp as on 20 June is estimated at 2,063,000 acres (81.5 % of that planned) compared with 2,282,000 in 1931 and 2,193,000, the average for the preceding quinquennium.

TOBACCO

Belgium: Production in 1932 is estimated at 13,518,000 lb. against 14,469,000 in 1931 and 15,027,000 in 1926-30; 93.4 % and 90.0 %.

Bulgaria: On an area of 76,600 acres, the same as in 1931 and about 5 % above the average of 1926-30, production is forecast at 513,000 centals; this quantity is 6.4 % below that produced in 1931 and 6.5 % below the average of 1926-30.

Hungary: On about July 10 the tobacco crop had made good progress.

Italy: The crop is vigorous.

Yugoslavia: At the beginning of July the crop condition of tobacco varied from average to good.

U. S. S. R.: The area under tobacco this year is 449,000 acres against 450,000 in 1931 and 222,000, the average for 1926-30; percentages: 99.7 and 202.0.

United States: At the end of June tobacco was irregular in parts of the Southeast but rains brought about an improvement in Kentucky and Tennessee.

The tobacco area this year is estimated at 1,447,000 acres compared with 2,020,000 last year and 1,847,000 on the average for 1926-30; percentages: 71.6 and 78.4. Production is estimated on the basis of crop condition on July 1, at 1,061,000,000 lbs. against 1,600,910,000 in 1931 and 1,413,742,000 on the average for 1926-30; percentages-66.3 and 75.0.

Crop condition of tobacco on 1 July was 66.1 compared with 71.3 on 1 July 1931.

Palestine: The early crop on the Acre and Sarad hills is in fair condition as also the crop on Carmel.

Turkey: The tobacco crop is satisfactory this year as regards both quality and quantity.

Algeria: The tobacco yields of 1932 are average, production being estimated at 419,000 centals from 52,000 acres (about 8 centals per acre); in 1931 production was 399,000 centals from 57,000 acres (7 centals per acre); as regards the period 1926-30, an average of 499,000 centals was produced from the average area of 61,000 acres (8.2 centals per acre). Production this year is 105.1 % of that of 1931 and 84.0 % of the average; the corresponding relations for area are 91.5 % and 85.6 % respectively.

HOPS

Belgium: Production in 1932 is estimated at 884,000 lbs. against 1,148,000 in 1931 and 4,588,000 in 1926-30; 77.0 % and 19.3 %.

France: Despite the fairly warm weather that prevailed in the North from mid-June to mid-July, especially towards the end of this period, the hop crop remained irregular; some fields were attacked by vermin.

Great Britain and Northern Ireland: The bines are generally shorter than usual and in some places the crop is backward and weak. Downy mildew is prevalent. Yields will probably be considerably below average.

Hungary: During the first week of July the hop crop was making satisfactory progress.

United States: The area sown to hops this year (22,000 acres) is slightly larger than that of last year (21,400) but rather below the average for 1926-30 (23,100); percentages: 102.8 and 95.2. Production is estimated, on the basis of crop condition on July 1, at 23,600,000 lbs. against 25,852,000 in 1931 and 30,353,000 on the average for 1926-30; percentages: 91.3 and 77.8.

Crop condition of hops on 1 July was 79.7 compared with 85.6 on 1, July 1931.

OTHER PRODUCTS

Tea.

U. S. S. R.: Towards the end of June, the first picking of tea was finished; 660,100 lbs. have been picked, exceeding that provided for in the plan by 15.1 %.

Ceylon: During the month of June rainfall was generally above normal particularly on the western slopes of the hills. There was a deficiency of rain in the area between the eastern slopes of the main hill country and the east coast south of Batticaloa. Crop condition of tea at the beginning of June was good.

India: According to a report dated June 30 received from the Department of Commercial Intelligence and Statistics, weather conditions in North India were variable during May but crop prospects were fairly good. Statistics to the end of May for North India recorded an increase of 2 ½ million pounds as compared with the outturn to the same date of last year.

In South India well-distributed showers were experienced during the larger part of May but later heavy rains fell and crop prospects deteriorated. The outturn to the end of May was 6.72 % ahead of that for South India to the same date of last year.

Japan: Generally speaking, the weather during May was favourable, but insufficient manuring has had a bad influence on the progress of the crop; its condition on 1 June was rather poor.

Cacao.

Gold Coast: Shipments during May were the lowest recorded in the past four years and total shipments for the eight months October-May confirm the forecast given last October of a small major crop.

The exact figure for production is difficult to assess in the absence of reliable information as to stocks. About 3 million pounds must be added to the October-May shipments to allow for the difference between minor crop cacao exported after 1 October and major crop cacao shipped before that date. Records show that 4 million pounds

came from Togoland so that the total shipments of major crop beans from the Colony and Ashanti up to the end of May were 399 million pounds. Apart from the visible stocks at Takoradi and Accra there was reputed to be about 31 million pounds at the end of May in private stores awaiting shipment, in all, therefore, about 47 million pounds.

Crop movement up to the end of May was as follows:

	May 1932	October 1931 to May 1932	May 1931	October 1930 to May 1931
Arrivals by rail at Takoradi and Accra (1000 lbs.)	2,410	248,100	3,259	264,519
Shipments from Takoradi and Accra (1000 lbs.)	5,524	315,948	19,340	348,990
Shipments from all ports (1000 lbs.)	9,724	399,587	22,118	429,883
Stocks at Takoradi and Accra beach at end of March (1000 lbs.)	15,559	—	...	—

The current minor crop is proving to be definitely light in all districts. During the latter part of May rains were above normal and conditions generally not very favourable for harvesting. Picking is proceeding in most districts, the reluctance of growers to harvest the small numbers of ripe pods being counteracted by their shortage of money.

Flowering and pod setting of the 1932-33 major crop have proceeded satisfactorily. Actual development of the crop is masked by the late minor crop but it appears to be rather earlier than normal. The amount of pod setting indicates the possibility of a good crop if weather during the next two months proves favourable.

Coffee.

Surinam: Owing to the very abundant rains in March, the ripening of the berries was delayed and in some plantations the green berries dropped off. Production remained below expectations for the first quarter but for the whole of the year 1932 is forecast to be satisfactory.

Netherland East Indies: Gijselman and Steup in their annual estimate of production for export according to different types give the following figures for 1932, the final figures for the preceding years being given for comparison (thousands of pounds):

	Liberia	Liberia Kind	Java	Robusta	Robusta Kind
Mean 1926-30	895	1,014	16,213	212,354	713
1931	854	1,408	20,502	206,674	252
1932 (estimate)	616	1,109	16,716	216,698	351

Groundnuts.

India: In Bombay Presidency sowing of groundnuts commenced in the South Deccan in mid-June.

Union of South Africa: Most of the crop had been lifted by the beginning of June. The latest returns from Northern Transvaal show a general downward tendency in comparison with the previous estimated figures.

The latest estimate of production in 1931-32 is 54,300 centals, 33 % less than the production of 1930-31 and 55 % less than the average for the five years ending 1926-30.

Colza, sesamum and mustard.

Austria: The crop condition of colza at the beginning of July was 3.0 compared with 2.8 on June 1 of this year and 2.6 on July 1, 1931.

Belgium: Production of colza in 1932 is estimated at 3,000 centals (5,900 bushels) againsts 3,300 (6,600) in 1931 and 7,100 (14,200) in 1926-30; 89.7 % and 41.8 %.

Bulgaria: The colza crop has been damaged by frost and insects and, on an area of 12,400 acres representing 38.9 % of that of 1931 and 34.8 % of the average of 1926-30, production is forecast at 77,000 centals (154,000 bushels) that is, 29.5 % of the 1931 crop and 27.8 % of the five year average.

Production in the present year is forecast at 71,000 centals (3,500 short tons) that is 8.4 % above 1931 and over double the average of 1926-30.

The area cultivated to sesamum this year is estimated at 20,000 acres which is 11.6 % larger than the 1931 acreage and 36.7 % above the average of 1926-30.

Hungary: The latest estimate of colza production in Hungary is 197,000 centals (393,000 bushels), about equalling the 1926-30 average, but 10.9 % below last year's production of 221,000 centals (441,000 bushels).

Netherlands: The 1932 colza area is estimated at 3,100 acres against 5,000 in 1931 and 5,900, the average for 1926-30 (63.5 % and 53.1 %). Production is forecast at 66,000 centals (131,000 bushels) against 86,000 (172,000) and 125,000 (250,000); percentages: 76.5 and 52.5. The 1932 mustard area is 3,700 acres against 6,900 and 7,100 respectively (53.7 % and 52.8 %).

Rumania: According to the official mid-June report the winter colza sowings have been greatly damaged.

Japan: On 20 May the area under colza in 38 prefectures producing almost the entire crop was estimated to be increased by 11.6 % as compared with last year. The crop condition on the same date was 103 against 100 on 20 May 1931.

Palestine: Only on the coastal plain and parts of the plain of Esdraelon will anything more than a 40 % yield be obtained. Sesame was the only staple of which the price did not tend downward, an appreciable rise being shown.

SERICULTURE

According to information derived from various sources, the current sericultural season presents the following characteristics. In Japan the production of spring cocoons as at the end of June in forty Prefectures was estimated at about 14 % of that of 1931 and this decrease is attributed on the one hand to the reduced quantity of eggs incubated and on the other, to the seasonal conditions which favoured the diffusion of disease amongst the silkworms. Owing to the increasing precariousness of the world market, it seems that Japanese sericulturists intend to considerably reduce production of summer-autumn cocoons. In China it is forecast, according to information up to mid-June, that the new crop will be rather poor, as the quantity of eggs incubated has diminished considerably compared with last season.

In the countries of Eastern Europe, in which, however, sericulture is of smaller importance, weather conditions have on the whole favoured silkworm-rearing; in Bulgaria, mulberry leaves have been abundant and of excellent quality and average yields were forecast with a production perhaps exceeding that of 1931. In Rumania, the low temperatures which persisted for an exceptionally long period after the winter, considerably retarded the growth of mulberry vegetation and the rearing of silkworms; the quantity of eggs incubated is considered to nearly equal that of 1931 and average yields are forecast. As regards Greece, the information available is limited to Macedonia, which, however, includes by far the most important sericultural areas of the country. It is estimated that production of cocoons will nearly equal that of last year although the quantity of silkworm eggs incubated is smaller. In Hungary and Turkey the mulberry trees have shown satisfactory growth and the weather has been favourable for silkworm rearing.

As regards the countries of western Europe, it is known that in Spain, the results of the sericultural season have, until now, been satisfactory and it would probably not be far from the truth to forecast a production slightly larger than that of last year. In France, the early rearings have yielded well whereas those resulting from eggs incubated late have suffered considerably from unfavourable weather which has seriously compromised production.

Lastly, in Italy the relatively low temperatures which have prevailed since mid-June have prevented the spreading of disease but have also further delayed the mounting into the trees of the silkworms of later rearings, especially in northern Italy. Following the promise of a premium which the Italian Government has decided to pay for each kilogram of cocoons produced, sericulturists have increased their efforts to obtain higher yields.

At the last moment there has been received from the Japanese Government a telegram containing the first estimate of spring cocoon production. The quantity of cocoons obtained from spring rearings this year is 170.2 million kilograms, 13.8 % below that of 1931 and 8 % below the mean for the quinquennium 1926-30 (respectively 197.5 and 185.0 million kilograms).

FODDER CROPS

The weather conditions during June in most of the countries of continental Europe were very variable; temperatures below the normal predominated and in many countries had frequent, heavy rains. Dry weather predominated in Great Britain and Northern Ireland, in the southern regions of France and in some regions of Central Europe. The weather on the whole favoured the growth of fodder crops and the first cutting of hay on the permanent and temporary meadows in most European countries may be considered quite satisfactory. Forecasts for root fodder crops were also good. The situation as regards pastures was likewise satisfactory.

In North America, weather conditions were not favourable to fodder crops, the situation of which at the end of June was on the whole below the average in both Canada and the United States. During the first ten days of July, rainfall over large areas of the United States and Canada improved the fodder crop situation.

Germany: At the end of June the first cutting was in progress. In favourably situated districts the hay crop was already finished. Yields are satisfactory both in quantity and quality.

Austria: Fodder beet sown directly on the fields developed well up to the end of June while transplanted beet was backward. The first cutting of red clover, alfalfa and mixed clover was for the most part harvested. Quality is good but yields have been disappointing in places. In the border districts of the east and north-east there are frequent complaints of scarcity of green fodder, the growth of clover after the first cutting being slow.

The first cutting of permanent meadows was prolonged by the frequently rainy and cold weather. Quality of the hay is, however, good. From the quantitative point of view yields are satisfactory only on the moister and better cultivated lands. Owing to lack of moisture growth of grass after the first cutting makes only slow progress. Pastures are also backward and in several districts do not offer sufficient feed for the stock.

Belgium: Production of fodder crops is abundant. Hay is of good quality with a yield of about 40.1 centals (2.0 short tons) per acre.

The following table gives the area of fodder crops in 1932 compared with that of the preceding year and with the mean for 1926-30:

CROPS	1932	1931	Average 1926-30	% 1932 1931 = 100	Average 1932 = 100
	(thousand acres)				
Mangolds	207	210	197	98.4	105.2
Carrots (as principal crop)	2	4	3	52.4	79.7
Turnips and swedes (as principal crop)	10	11	14	92.1	74.3
Crimson or French clover	23	24	25	93.3	90.1
Red or ordinary clover	210	210	198	99.9	106.0
Other clovers	55	56	56	97.0	98.2
Alfalfa	28	28	28	99.4	100.2
Sainfoin	10	10	11	96.0	88.6
Mown meadows	621	612	606	101.4	102.5
Grazed meadows	708	714	689	99.1	102.8
Rye grass and timothy	24	23	24	102.9	101.0
Mixed fodder	12	13	16	95.8	75.3
TOTAL . . .	1,910	1,918	1,866	99.6	102.3

Bulgaria: Rainfall though frequent during the month, was not sufficient for the improvement of the quality of fodder plants. The preliminary estimates of production are as follows:

	1932	1931	% 1932 (1931 = 100)
Permanent meadows (000 centals)	20,768	18,827	110.3
(000 short tons)	1,038	941	
Temporary meadows (000 centals)	3,638	3,759	96.8
(000 short tons)	182	188	
Vetches (000 centals)	8,543	7,496	114.0
(000 short tons)	427	375	
Mangolds (000 centals)	992	1,653	60.0
(000 short tons)	50	83	
Fodder millet (000 centals)	774	1,032	75.0
(000 short tons)	39	52	

Irish Free State: Weather in June was ideal for cutting and saving of hay; first and second crops were harvested in excellent condition and although the yield was slightly below average the quality was better than normal.

Finland: Below are given the areas and productions of the principal fodder crops in 1932 and 1931:

<i>Area</i> (ooo acres):	1932	1931	% 1932 (1931 = 100)
Permanent meadows	1,075	1,186	90.6
Temporary meadows	(1) 2,518	(2) 2,929	86.0
Turnips	47	54	86.4
Fodder roots and tubers in general	67	69	96.5
Pastures	1,236	1,236	100.0

<i>Production:</i>			
Permanent meadows (ooo centals) . . . . .	...	8,949	—
(ooo short tons) . . . . .	...	447	
Temporary meadows (ooo centals)	58,418	62,146	94.0
(ooo short tons)	2,921	3,107	
Turnips (ooo centals)	10,218	11,413	89.5
(ooo short tons)	511	571	
Fodder roots and tubers in general (ooo centals)	13,490	13,325	101.2
(ooo short tons)	674	666	

France: The hay crop was cut and carted in generally propitious weather at the end of June and mid-July despite fairly numerous storms during this period. Although quality appeared to be satisfactory, quantity did not seem to be large.

In the west, the dry weather delayed transplanting of fodder plants; the rain which set in after the beginning of July was beneficial but the crop is backward.

The following table gives the area of fodder crops, meadows and grassland in 1932 compared with that of the preceding year and the average of 1926-30:

	1932	1931 thousand acres	Average 1926-1930	% 1932 1931 = 100	Average = 100
Mangolds	1,851	1,866	1,961	99.2	94.4
Annual green fodder	1,714	1,729	1,794	99.1	95.5
Leguminous crops	7,198	7,210	7,160	99.8	100.5
Graminaceous and mixed crops	1,174	1,120	1,097	104.8	107.0
Permanent meadows	13,362	13,340	13,138	100.2	101.7
Grass	4,695	4,470	4,610	105.0	101.8
TOTAL (excluding mangolds)	28,143	27,869	27,799	101.0	101.2

The area of meadows has apparently again increased this year; the slight reduction noted for annual fodder crops is due to the bad weather that prevailed throughout the spring.

(1) Including 326,000 acres of pasture.

(2) Including 371,000 acres of pasture.

The crop conditions published in the general table have been approximately calculated and refer to 1 June. Since 15 June a considerable improvement has taken place and the figures of crop condition should be raised several points to give a more correct indication of the present situation.

Great Britain and Northern Ireland: The dry sunny weather in June was excellent for haymaking and at the end of the month a good proportion of the hay had been secured in splendid condition in the southern half of England and Wales while in Scotland the harvest had been begun under equally satisfactory conditions. In England and Wales the yield of seeds hay was forecasted at nearly $\frac{1}{2}$ cwt. per acre below average or $27\frac{3}{4}$ cwt. and in Scotland crop condition is reported as slightly below average. Yield of permanent meadows in England and Wales was estimated to be 19 cwt. per acre, about $1\frac{1}{2}$ cwt. less than the ten-year average owing to lack of bottom growth as a result of the backward season while in Scotland crop condition was average. During the greater part of June pasture was fairly plentiful in England and Wales; in Scotland its condition was average and grass was generally fairly plentiful and of good quality though in some districts pastures became rather bare.

In England and Wales the drilling and hoeing of root land was rendered difficult by the baked condition of the surface and more rain was needed; mangolds as a whole were backward and, except for the early-sown crops on lighter land, were not promising; the dry weather was unfavourable for germination of later sowings of turnips and swedes and though early sowings made some progress these too were generally backward.

Hungary: On about July 10 the second cutting of clover and alfalfa was begun. The crops are in general average. The crop of mixed vetches and oats is also only average. The green fodder crops are growing well. The vegetation of permanent meadows, after the carting of the first cutting, has grown only slowly due to lack of moisture. Pastures also need rain.

Italy: During the first half of June fodder crops, favoured by rain, promised good yields but the actual crops later obtained were in general poor; it is hoped that better results will be obtained from the next cuttings.

Latvia: Crop condition of clover at the beginning of July was average in 54.8 % of the cases examined by correspondents; above it in 16.6 % and below it in 28.6 %. The corresponding figures for permanent meadows are: 61.5 %, 21.3 % and 17.2 %. The chief causes were drought and cold.

Netherlands: Towards the middle of June, clover crops had a good appearance. Low-lying meadows and pastures have suffered greatly from the heavy rains and low temperatures in May but, thanks to the warm, dry weather which prevailed at the date of this note, crop condition has greatly improved and on 13 June was judged to be good to very good on all lands.

Weather conditions in June were favourable to meadows and pastures; growth is very satisfactory. The area sown to clover (in thousands of acres) is 75.1 compared with 80.0 last year and 78.6, the average for the previous five years; percentages: 94.0 and 95.6. For temporary meadows the figures are 45.5, 47.3 and 37.4; percentages: 96.1 and 121.5; for mangolds; 107.5, 109.6 and 98.9 (98.1 % and 108.7 %).

The area under kohlrabi and turnips in 1932 is estimated at 27,800 acres against 29,000 in 1931 and 31,600, the average for 1926-30; percentages 95.8 and 87.9. The area of fodder carrots is 4,100 against 4,700 and 5,100; 88.1 % and 81.6 %.

Poland: Towards the end of June the cutting of meadows had already been finished over most of the country except the eastern regions. The best hay yields the first cutting were obtained in the western regions.

The clover crop was more abundant in the western regions; in the remainder of from the country it was nearly average and in some areas good.

Switzerland: Cutting, which was a little in delay, was concluded fairly quickly; the crop was satisfactory as regards both quantity and quality. Meadows in general promised a good aftermath and their condition may be considered nearly as favourable as last year. In the Alpine regions, on the contrary, growth was severely compromised by the persistence of snow and night frost.

Judging from present condition, satisfactory crops of fodder roots may be anticipated.

Czechoslovakia: Heavy rains during June following prolonged dry weather during the preceding month, were very favourable to fodder crops although they somewhat delayed cutting in many areas without, however, causing much damage.

Yugoslavia: Rainfall during June, especially in the latter half of the month, was favourable to fodder crops. In some regions, however, excessive rain hindered the harvest and was detrimental to the quality of the hay.

Canada: The preliminary estimates of the areas sown to fodder crops this year compared with the data for 1931 and the average for 1926-30 are as follows:

	1932	1931	Average 1926-1930	1932 = 100	% 1931 Average = 100
	(000 acres)				
Hay and clover	8,693	8,532	10,248	101.9	84.8
Alfalfa	603	537	829	112.2	72.7
Fodder maize	345	342	453	100.9	76.2
Turnips, etc.	146	154	206	94.8	71.0

British Columbia: According to information cabled by the Canadian Government during the month of June crop prospects declined generally in the Maritime Provinces, Eastern Canada and British Columbia. Condition of nearly all crops in these areas was below the average, hay and pasture crops being particularly poor. The first hay cutting in the East was considerably below the average due to the dry cold weather. Crop conditions improved in the West except in British Columbia; in Alberta crops were still most promising but drought caused some damage.

In the first two weeks of July, substantial rains fell in the Maritime Provinces, Quebec and Ontario and materially improved root crops and pastures. The outlook for all crops in Quebec was however, below the normal. Haymaking was in progress throughout Canada but had been delayed during the last ten days by showery weather. All crops made good progress in the Prairie Provinces.

The Condition of Fodder Crops.

Crops and countries	CROP CONDITION (†)								
	July 1, 1932			June 1, 1932			July 1, 1931		
CLOVER:									
Germany	2.6	—	—	2.6	—	—	2.8	—	—
Austria 1)	2.8	—	—	2.8	—	—	—	3.0	—
Estonia	—	—	92	—	2) 100	—	—	—	97
Italy	—	f)	—	—	—	g)	d) e)	—	—
Latvia	2) 110	—	—	—	100	—	120	—	—
Lithuania	3.6	—	—	3.8	—	—	3.9	—	—
{ annual	—	—	—	—	—	—	3.2	—	—
{ biennial	—	—	2.7	—	3.0	—	—	—	—
Netherlands	2) 69	—	—	—	—	—	2) 67	—	—
{ red clover	—	—	—	—	—	—	2) 80	—	—
{ white clover	2) 70	—	—	—	—	—	—	—	—
Poland	—	—	—	—	2) 2.7	—	—	2) 2.8	—
Canada 3)	—	—	89	—	91	—	—	—	97
United States	—	—	—	—	74.6	—	—	—	—
Egypt	101	—	—	101	—	—	100	—	—
ALFALFA:									
Germany	2.6	—	—	2.6	—	—	2.7	—	—
Austria	2.9	—	—	—	3.0	—	—	3.0	—
Italy	—	f)	—	—	—	g)	d) e)	—	—
Canada	—	—	—	—	—	97	—	100	—
United States	—	—	—	—	—	83.5	—	—	—
MANGOLDS:									
Germany	2.8	—	—	2.7	—	—	2.8	—	—
Austria	2.7	—	—	2.8	—	—	—	3.0	—
Bulgaria	130	—	—	130	—	—	160	—	—
France	66	—	—	—	—	—	68	—	—
Italy	—	f)	—	—	—	g)	d) e)	—	—
Lithuania	3.1	—	—	—	—	—	—	—	2.9
Switzerland	—	100	—	—	—	98	—	100	—
TEMPORARY MEADOWS:									
Austria 4)	2.7	—	—	2.6	—	—	2.5	—	—
Bulgaria	110	—	—	100	—	—	150	f)	—
Finland	—	f)	—	—	—	—	—	—	—
France	70	—	—	—	—	—	71	—	—
Italy	—	—	—	—	—	g)	d) e)	—	—
Rumania	d)	—	—	—	—	—	—	—	—
Switzerland	4.1	—	—	4.1	—	—	4.4	—	—
United States	—	—	76.7	—	—	79.7	—	—	73.6
{ tame hay	—	—	—	—	—	76.9	—	—	61.0
{ wild hay	83.2	—	—	—	—	77.4	—	—	71.6
{ hay total	—	—	—	—	—	—	—	—	—
PERMANENT MEADOWS:									
Germany	2.5	—	—	2.4	—	—	2.1	—	—
{ irrigated meadows	2.6	—	—	2.6	—	—	2.4	—	—
{ other meadows	2.6	—	—	2.7	—	—	2.7	—	—
Austria	130	—	—	135	—	—	150	—	—
Bulgaria	—	—	f) g)	—	—	—	—	f)	—
Finland	—	—	—	—	—	—	—	—	—
France	68	—	—	—	—	—	71	—	—
Italy	—	f)	—	—	—	g)	d) e)	—	—
Latvia	—	2) 100	—	—	—	95	117	—	—
Lithuania	3.1	—	—	3.2	—	—	3.2	—	—
Netherlands 5)	2) 74	—	—	—	—	—	2) 82	—	—
{ dry meadows	—	—	—	—	—	2) 2.6	—	—	—
{ flowed meadows	—	—	—	—	—	2) 2.7	—	—	—
{ meadows improved	—	—	—	2) 3.2	—	—	—	—	—
Rumania	d)	—	—	—	—	—	—	—	—
Switzerland	4.2	—	—	4.1	—	—	4.3	—	—
PASTURES:									
Austria	—	3.0	—	—	—	3.2	—	—	3.1
France 6)	67	—	—	—	—	—	68	—	—
Italy	—	f)	—	—	—	g)	d) e)	—	—
Netherlands	2) 74	—	—	—	—	—	2) 81	—	—
Poland	—	—	—	—	—	2) 2.5	—	—	—
{ permanent pastures	—	—	—	—	—	2) 2.5	—	—	—
{ temporary pastures	—	—	—	—	—	—	—	—	—
Rumania	d)	—	—	—	—	—	—	—	—
Switzerland	3.3	—	—	3.5	—	—	4.6	—	—
Canada	—	—	89	—	—	91	—	—	98

a) above the average. — b) average. — c) below the average. — d) excellent. — e) good. — f) average. — g) bad. — h) very bad. — †) See explanation of the various systems on page 431. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Clover and hay. — 4) Klee grass. — 5) Meadows for hay. — 6) Grass.

United States: At the end of June pastures and meadows still needed rain rather badly in many sections from the Ohio Valley northeastward and more moisture would have been helpful in many western sections although ranges were holding up fairly well.

Total hay production this year is forecast at 1,600 million centals (80 million short tons) which is 10.5 % more than in 1931 (1,447,320,000 centals; 72,366.000 short tons) but 4.6 % below the 1926-30 average (1,676,924,000; 83,846,000).

French Morocco: Pasture grass was in good condition at the beginning of July owing to the late rains which fell at the end of the previous month.

LIVESTOCK AND DERIVATIVES

The number of pigs in Germany on 1 June 1932.

The total number of pigs on 1 June 1932 was smaller then that on 1 June 1931 but considerably above the corresponding figures for 1930 and 1929. In comparison with the total number on 1 March 1932 the estimate of last June shows an increase; this increase, which is normal for the period March-June, was, however, less than in the previous two years, particularly than in 1930.

Numbers of pigs in Germany (1).

CLASSIFICATION BY SEX AND AGE	1 June 1932	1 March 1932	1 Dec. 1931	1 Sept. 1931	1 June 1931	2 March 1931	1 Dec. 1930	1 Sept. 1930	2 June 1930	1 March 1930	2 Dec. 1929	2 Sept. 1929	1 June 1929
	(1000 head).												
<i>Totals</i>	21,289	20,633	23,783	25,348	22,529	21,790	23,442	23,423	19,805	18,649	19,944	19,604	16,795
<i>Sucking pigs under 8 weeks of age</i>	5,501	5,013	5,125	6,804	6,027	5,750	5,469	6,522	5,091	5,012	4,417	5,373	4,160
<i>Young pigs from 8 weeks to 6 months of age</i>	9,832	9,976	10,469	10,980	10,351	10,231	10,035	9,809	9,178	8,555	8,693	8,290	8,099
<i>Pigs from 6 months to 1 year of age</i>	4,109	3,853	5,775	5,391	4,172	3,939	5,484	5,125	3,842	3,487	4,599	4,288	3,060
Of which:													
Boars for service. . .	46	47	52	51	54	58	61	57	57	54	56	50	48
Sows for breeding (tot- al)	607	549	495	569	693	706	674	812	876	722	663	652	671
Sows covered	(374)	(323)	(251)	(276)	(409)	(425)	(369)	(442)	(574)	(455)	(383)	(363)	(405)
Other swine	3,456	3,257	5,228	4,771	3,425	3,176	4,749	4,256	2,909	2,712	3,880	3,585	2,341
<i>Pigs 1 year old and over</i>	1,847	1,791	2,414	2,173	1,979	1,870	2,455	1,967	1,694	1,695	2,235	1,653	1,475
Of which:													
Boars for service. . .	73	67	63	73	71	62	60	61	57	51	50	58	55
Sows for breeding (tot- al)	1,534	1,425	1,458	1,661	1,663	1,517	1,503	1,467	1,356	1,229	1,179	1,208	1,145
Sows covered	(938)	(875)	(869)	(902)	(1,021)	(927)	(942)	(861)	(915)	(792)	(775)	(737)	(787)
Other swine	240	299	893	439	246	291	892	440	280	315	1,006	387	275

1) Present territory, excluding the Saar.

If the figure for pigs over 6 months old available on 1 June 1932 for meat production is compared with the corresponding figure as at the beginning of June 1931, a very slight increase of 0.7 % is noted, whereas for young pigs 8 weeks to 6 months old there is found to be a decrease of 5 % and for sucking pigs under 8 weeks old, a decrease of not less than 8.7 %. The number of sows in farrow on 1 June 1932 was smaller than a year previously; it should be observed, however, that the seasonal increase in the number of sows in farrow during the quarter from the beginning of March to the beginning of June 1932 (9.5 %) was larger than in the corresponding quarter of 1931 (5.8%).

Condition of Livestock and Dairy Production.

Belgium: The general situation remains good.

Irish Free State: Fodder supplies are adequate. Owing to the long spell of warm dry, weather in June milk yields for the month were slightly below average.

Great Britain and Northern Ireland: Store cattle in Northern Ireland maintained good health and condition during June and, while somewhat affected by the shortage of grass, thrived very well. Hay was used in some districts to supplement the pasture.

In Scotland feedingstuffs for dairy use are now more plentiful and prices are falling. The condition of dry and concentrated feedingstuffs is quite good. In the principal dairying area the milk yield was good but in the west, where dry weather continued for a longer period than elsewhere, a temporary scarcity of grass affected the local milk supply and hand-feeding was necessary. In England and Wales and in Northern Ireland the milk yield was well maintained and in one or two districts of the latter the quantity available was above normal. Dairy stock in Northern Ireland were reported as in good health and condition, as also sheep and lambs.

Netherlands: Milk production in June differed little from the normal.

Canada: The following summary gives the number of egg-producing hens on farms in Canada according to the 1931 Census and the number of hens' eggs produced on farms in 1931, comparable figures being given in each case for previous years.

	Egg-producing hens on farms No.	Average product. per hen No.	Total eggs produced Dozen
1925	32,837,040	82	224,778,867
1926	34,006,290	84	237,080,399
1927	34,722,700	87	253,277,227
1928	34,022,511	95	268,868,857
1929	34,453,000	95	274,317,872
1930	35,044,870	95	278,255,753
1931	30,940,616	112	286,882,447

United States: At the end of June livestock continued in good condition.

The Department of Agriculture stated on 1 July that, owing to the reported fairly heavy losses of sheep, especially of old ewes, in the western range States during the winter and spring just passed and generally lighter fleeces, it seems probable that the upward trend in wool production in the United States will receive a check this year notwithstanding the fact that sheep numbers on 1 January, 1932 exceeded the number at the same date of the preceding year by 2 %. Official estimates of the 1932 clip, however, are not yet available.

French Morocco: At the beginning of July livestock remained in good health the animals were no longer suffering from the relatively moderate heat.

Union of South Africa: There were welcome rains in May in the Cape Western Province, Transvaal, Natal and the northern districts of the Orange Free State but over the greater part of the Cape Province and in the southern Free State droughty conditions continued with little relief. Very little grazing was available in the Cape North-west and it was feared that the lamb crop would be a failure but in Bechuanaland general prospects were favourable as a results of the good rains during April. Despite these adverse conditions stock in the Cape Province remained generally in fair condition but practically no winter crops could be sown in the inland areas. Lambing prospects were consequently unfavourable. In most districts of the Orange Free State veld was dry and poor and winter prospects were generally by no means bright. Conditions were decidedly better in Natal and Transvaal, where grazing was considerably improved by recent rains and the mild autumn; nevertheless as a result of the low rainfall last summer springs, dams and streams were very low and some difficulty may be experienced in providing sufficient drinking water for stock.

New Zealand: The quantity of butter received into grading-stores in April created a new record for the month and was 14.4 % in excess of that for April 1931. Butter production in the first nine months of the present season, that is from October 1931 to April 1932, reached a total of 212.8 million pounds and establishes a new record for the period; the total is 6.6 % ahead of that for the first nine-months of 1930-31.

Production of cheese in April was also well maintained, the quantity for the month being 7.9 % ahead of that for April 1931. While the output in the nine-month period was well up to expectations the total of 179.2 million pounds falls short of last season's record for the period by 4.1 %.

The total butterfat production for the nine months exceeded that for the same period of last year by 1.5 %.

TRADE

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Wheat. — Thousand centals (1 cental = 100 lbs).										
<i>Exporting Countries:</i>										
Bulgaria	212	802	0	0	5,326	2,361	0	0	3,234	0
Hungary	375	170	0	0	7,284	4,844	0	0	5,247	0
Lithuania	0	4	0	0	20	540	0	0	545	0
Poland	209	97	9	2	1,248	1,601	342	46	1,847	49
Rumania . . . . .	...	...	...	...	20,693	7,163	1)	7	9,054	9
U. S. S. R. . . . .	...	...	...	...	37,426	50,067	2)	—	67,735	—
Yugoslavia	148	11	0	0	8,175	2,844	0	0	3,247	0
Canada	9,326	17,714	9	11	88,397	117,478	66	64	137,150	79
United States	4,370	3,845	384	639	46,626	33,733	6,219	9,824	46,253	11,616
Argentina	7,886	12,361	—	—	76,267	57,554	—	—	71,725	—
Chile . . . . .	...	...	...	...	7	425	1)	0	428	0
Turkey . . . . .	...	...	...	...	732	198	1)	7	265	7
Algeria . . . . .	...	...	...	...	2,685	6,279	3)	481	6,810	1,371
Tunis	104	60	20	99	2,178	1,418	375	509	3,704	542
Australia	9,125	8,054	0	0	64,552	61,258	0	0	76,505	0
<i>Importing Countries:</i>										
Germany	11	0	1,122	1,283	7,293	265	13,347	13,629	265	18,805
Austria	0	0	302	331	0	84	5,271	3,962	86	5,315
Belgium	157	412	3,005	2,079	3,208	1,307	25,439	24,101	2,079	31,184
Denmark	0	13	525	593	9	44	7,586	3,605	46	4,877
Spain	0	0	126	0	0	4	161	0	4	0
Estonia	0	0	33	22	0	0	247	306	0	370
Irish Free State . . . . .	...	...	...	...	13	18	4,901	5,053	18	6,435
Finland	0	0	49	9	0	0	335	75	0	90
France	0	0	5,721	4,118	9	966	40,497	32,527	966	46,597
Gr. Brit. and N. Ir.	434	35	9,879	8,574	1,076	600	115,644	102,061	683	124,551
Greece	0	0	1,332	1,422	0	0	12,024	11,402	0	14,233
Italy	0	0	4,198	5,000	18	22	16,504	41,634	22	50,122
Latvia	0	0	29	42	0	0	395	924	0	1,030
Norway	0	0	97	187	0	0	2,886	2,679	0	3,126
Netherlands	2	35	1,138	917	101	672	13,627	14,319	683	16,568
Portugal	—	—	49	71	—	—	564	278	—	1,316
Sweden	2	0	128	183	9	31	3,102	2,497	31	2,879
Switzerland	4	0	911	699	13	2	10,776	9,345	2	11,096
Czechoslovakia	0	0	1,008	600	4	4	11,111	3,584	4	7,079
British India	2	2	0	373	174	1,925	179	5,503	2,251	6,687
Japan	—	—	1,537	2,019	—	—	13,651	12,425	—	15,311
Syria and Lebanon	13	2	101	0	494	117	198	57	137	44
Egypt . . . . .	...	...	...	...	0	2	844	935	2	1,019
Union of South Africa . . . . .	...	...	...	...	0	0	788	1,270	0	1,601
New Zealand . . . . .	...	...	...	...	0	0	75	106	0	128
Totals	32,380	43,617	31,712	29,473	374,059	353,826	308,329	305,295	441,028	384,136
Rye. — Thousand centals (1 cental = 100 lbs).										
<i>Exporting Countries:</i>										
Germany	15	0	2,321	75	2,041	1,213	8,369	628	1,213	690
Bulgaria	4	110	0	0	985	1,270	0	0	1,413	0
Hungary	179	33	0	0	1,296	1,526	0	0	1,579	0
Lithuania	0	13	0	0	0	163	2	0	165	0
Poland	75	137	0	0	2,143	5,624	123	0	5,880	2
Rumania . . . . .	...	...	...	...	1,596	959	0	0	1,299	0
U. S. S. R. . . . .	...	...	...	...	17,910	9,262	—	—	15,794	—
Canada	948	62	0	0	3,053	728	0	0	1,171	0
United States	126	11	—	—	315	84	—	—	90	—
Argentina	412	157	—	—	4,934	602	—	—	992	—
Turkey . . . . .	...	...	...	...	628	317	0	0	368	0
Algeria . . . . .	...	...	...	...	1)	35	0	0	35	0
<i>Importing Countries:</i>										
Austria	0	0	198	388	0	9	1,307	1,938	9	2,205
Belgium	121	22	340	401	509	99	2,022	2,738	126	3,739
Denmark	0	0	161	811	0	0	3,752	6,376	4	7,103
Estonia	0	0	7	26	0	0	13	145	0	194
Finland	0	0	163	46	0	0	633	1,323	2	1,570
France	0	0	128	119	0	0	1,426	1,164	0	1,378
Italy	0	0	11	53	0	0	128	531	0	597
Latvia	0	0	7	11	0	0	93	243	0	260
Norway	0	0	214	104	0	0	3,139	2,542	0	3,023
Netherlands	40	174	251	112	322	628	3,386	4,360	791	6,186
Sweden	4	2	24	15	20	4	968	474	4	520
Switzerland	0	0	4	13	0	0	75	15	0	174
Czechoslovakia	0	4	128	2	7	474	4,930	121	476	844
Totals	1,924	725	3,957	2,176	35,770	22,997	30,366	23,338	31,409	28,485

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Wheat flour. — Thousand centals (1 cental = 100 lbs).										
<i>Exporting Countries:</i>										
Germany	2	2	9	20	62	123	172	179	128	238
Belgium	7	15	2	9	60	154	44	216	216	231
Bulgaria	97	51	0	0	697	174	0	0	220	0
Spain	0	7	0	0	15	60	0	0	75	0
France	139	670	18	24	4,160	5,648	205	496	7,423	569
Hungary	108	287	0	0	1,940	3,624	0	0	4,008	0
Italy	157	71	15	31	1,911	1,034	245	172	1,191	223
Latvia	0	0	0	0	0	71	0	0	73	2
Lithuania	2	2	0	0	22	20	0	0	24	0
Poland	13	26	0	0	472	573	4	22	615	24
Rumania . . . . .	...	...	...	...	833	357	...	...	421	0
Yugoslavia	11	2	0	0	84	86	0	0	88	2
Canada	906	944	4	4	8,558	11,237	33	42	13,113	49
United States	646	1,545	0	0	13,576	19,579	0	2	23,164	2
Argentina	68	174	—	—	1,237	1,717	—	—	2,055	—
Chile . . . . .	...	...	...	...	15	97	0	0	104	0
India	64	79	0	0	745	866	0	2	1,032	2
Turkey . . . . .	...	...	...	...	9	29	4	11	29	11
Japan	403	370	9	7	2,641	3,148	101	192	3,472	212
Algeria . . . . .	...	...	...	...	73	223	46	33	267	57
Tunis	18	22	0	0	115	218	18	9	251	11
Australia	1,124	1,135	0	0	12,086	8,770	0	0	10,404	0
<i>Importing Countries:</i>										
Austria	0	4	93	282	7	9	1,010	2,174	13	3,100
Denmark	2	2	86	101	11	20	1,144	1,354	24	1,572
Estonia	0	0	0	4	11	0	15	82	2	88
Irish Free State . . . . .	...	...	...	...	22	33	3,003	2,758	40	3,691
Finland . . . . .	...	...	112	152	0	0	1,354	0	2,150	0
Gr. Britain and N. Ir.	520	381	1,003	1,135	4,672	3,832	9,639	10,686	4,608	12,816
Greece	0	0	4	11	0	0	62	148	0	165
Norway	0	0	22	163	9	2	1,162	1,076	2	1,396
Netherlands	4	11	62	351	68	106	646	3,062	115	3,845
Portugal	—	—	15	22	—	—	128	174	—	218
Sweden	0	0	2	4	0	2	31	64	2	71
Czechoslovakia	0	0	86	2	7	11	970	2,396	11	2,432
Ceylon	—	—	29	24	—	—	359	362	—	445
Java and Madura . . . . .	—	—	...	...	—	—	871	730	—	1,025
Indo-China	—	—	37	29	—	—	346	373	—	428
Syria and Lebanon	2	0	51	13	90	9	344	130	22	168
Egypt . . . . .	...	...	...	...	0	0	2,064	2,674	0	3,560
Union of South Africa . . . . .	...	...	...	...	2	9	13	258	11	265
New Zealand . . . . .	...	...	...	...	2	2	172	163	234	234
Totals	4,293	5,800	1,659	2,388	54,212	61,843	24,207	31,850	73,225	39,302
Barley. — Thousand centals (1 cental = 100 lbs).										
<i>Exporting Countries:</i>										
Bulgaria	2	75	0	0	401	1,552	0	0	1,598	0
Spain	0	4	0	0	9	137	0	0	152	0
Hungary	2	9	0	0	51	573	7	4	580	4
Lithuania	0	0	0	0	0	13	0	0	13	0
Poland	97	18	0	0	3,104	2,778	0	0	2,798	0
Rumania . . . . .	...	...	...	...	14,123	30,254	...	...	33,797	4
Czechoslovakia	366	20	0	0	1,777	2,996	2	4	3,003	4
U. S. S. R. . . . .	...	...	...	...	15,115	17,249	—	—	23,385	—
Canada	822	3,016	0	0	5,199	4,989	0	0	9,240	0
United States	311	410	—	—	1,922	4,370	—	—	5,022	—
Argentina	337	509	—	—	6,349	4,960	—	—	5,701	—
Chile . . . . .	...	...	...	...	428	386	0	0	536	0
India	33	2	0	0	408	4	0	0	306	0
Syria and Lebanon	7	66	13	0	577	668	93	4	869	7
Turkey . . . . .	...	...	...	...	2,628	342	0	0	593	0
Algeria . . . . .	...	...	...	...	578	1,281	2,061	154	1,444	465
Egypt . . . . .	...	...	...	...	0	0	271	73	2	152
Tunis	68	11	0	18	196	176	551	384	220	390
Australia	95	146	0	0	1,523	1,418	0	0	1,552	0
<i>Importing Countries:</i>										
Germany	0	0	988	1,336	18	62	12,813	13,808	62	18,056
Austria	0	0	123	218	0	0	1,854	1,770	0	2,077
Belgium	121	225	536	597	1,453	911	8,459	9,275	1,076	10,538
Denmark	11	40	238	1,149	448	1,217	2,676	12,674	1,232	15,007
Estonia	0	0	0	...	...	...	0	13	0	13
Irish Free State . . . . .	...	...	...	...	26	20	304	267	20	454
France	0	0	791	767	15	22	8,157	6,592	22	7,721
Gr. Britain and N. Ir.	0	7	540	736	9	62	12,754	16,339	68	18,691
Greece	0	0	11	2	0	0	168	77	0	79
Italy	0	0	93	60	0	0	758	697	0	756
Latvia	0	0	0	4	0	0	4	201	0	212
Norway	0	0	79	44	0	0	780	814	0	1,078
Netherlands	20	51	397	930	260	567	7,890	12,588	591	14,716
Switzerland	0	0	214	139	0	0	2,635	2,396	0	2,829
New Zealand	0	2	0	0	13	20	37	130	29	130
Yugoslavia	0	0	0	0	...	...	...	...	...	...
Totals	2,292	4,611	4,023	6,000	56,430	77,029	62,274	78,264	92,012	92,000

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Oats. — Thousand cents (1 cental = 100 lbs).										
<i>Exporting Countries:</i>										
Germany	0	0	9	168	9	218	201	723	220	1,005
Irish Free State . . . . .	...	...	...	...	1) 66	2) 243	2) 205	236	254	452
Hungary	0	0	0	18	4	13	2	88	13	141
Lithuania	0	2	0	0	13	84	0	0	84	0
Poland	11	7	0	0	46	128	0	0	137	0
Rumania . . . . .	...	...	...	...	1) 218	1) 1,590	1) 0	0	1,779	0
Czechoslovakia	108	0	0	4	631	710	55	13	710	143
U. S. S. R. . . . .	...	...	...	...	...	...	...	...	10,726	...
Yugoslavia	0	0	0	0	0	2	0	84	2	86
Canada	551	560	20	0	4,032	1,453	556	234	2,659	234
United States	4	4	7	55	672	99	18	196	130	198
Argentina	1,526	1,455	—	—	14,209	12,229	—	—	15,062	—
Chile . . . . .	...	...	...	...	1) 137	1) 1,510	1) 0	0	2,178	0
Algeria . . . . .	...	...	...	...	3) 231	3) 917	3) 342	3) 137	1,292	225
Tunis	0	9	0	0	141	478	0	9	245	9
Australia	13	4	0	0	79	66	2	0	73	2
<i>Importing Countries:</i>										
Austria	0	0	119	295	0	2	1,228	1,786	2	2,227
Belgium	7	0	150	218	26	2	1,138	2,932	2	3,494
Denmark	0	0	49	75	66	20	395	988	20	1,270
Estonia	0	0	0	40	0	0	7	137	0	159
Finland	0	0	0	20	20	7	40	146	7	260
France	0	0	467	218	7	18	2,196	1,693	20	2,205
Gr. Brit. and N. Irel.	2	33	939	670	0	370	6,986	8,534	397	10,697
Italy	0	0	256	203	0	0	3,327	3,435	0	3,741
Latvia	0	0	0	0	0	4	7	53	4	57
Norway	0	0	37	0	2	4	273	4	4	4
Netherlands	0	11	126	119	42	355	1,949	2,784	375	3,609
Sweden	49	0	29	60	121	40	999	915	40	1,334
Switzerland	0	0	516	260	0	2	4,297	3,942	2	4,564
Totals	2,271	2,085	2,724	2,423	20,973	20,564	24,223	29,069	36,737	36,116
Maize. — Thousand cents (1 cental = 100 lbs).										
COUNTRIES	MAY				SEVEN MONTHS (November 1-May 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
<i>Exporting Countries:</i>										
Bulgaria	276	456	0	0	2,097	2,884	0	0	3,477	0
Rumania . . . . .	...	...	...	...	1) 20,792	1) 9,736	1) 0	0	18,658	2
Yugoslavia	134	615	0	0	1,453	5,576	24	7	6,420	24
United States	141	46	18	42	999	743	159	450	1,336	520
Argentina	13,508	15,342	—	—	103,448	83,405	—	—	198,983	—
Brazil . . . . .	...	...	...	...	0	11	—	—	18	—
Java and Madura . . . . .	...	...	...	...	1) 1,993	1) 1,351	—	—	2,407	—
Indo-China	110	22	—	—	1,382	1,550	—	—	2,584	—
Syria and Lebanon	0	0	13	0	7	141	24	35	159	49
Turkey . . . . .	...	...	...	...	1) 141	1) 44	1) 0	1) 0	212	0
Egypt . . . . .	...	...	...	...	1) 7	1) 4	1) 31	1) 66	4	298
Union of South Africa . . . . .	...	...	...	...	1) 1,592	1) 1,027	1) 0	1) 0	3,298	0
<i>Importing Countries:</i>										
Germany	0	0	1,986	580	0	0	10,095	4,363	0	10,007
Austria	0	0	635	558	0	2	4,427	3,071	2	6,270
Belgium	66	68	1,612	1,510	904	432	11,087	8,514	955	17,075
Denmark	0	0	1,967	1,045	0	0	12,719	5,079	0	13,539
Spain	0	0	403	284	0	0	4,301	2,363	0	3,666
Irish Free State . . . . .	...	...	...	...	1) 0	1) 9	1) 6,259	1) 4,716	26	12,044
Finland	0	0	35	13	0	0	276	115	0	355
France	2	2	1,594	1,052	22	35	13,425	11,204	40	23,755
Gr. Brit. and N. Irel.	260	165	4,158	3,933	1,715	1,312	37,435	27,836	2,407	53,281
Greece	0	0	132	71	0	0	3,186	172	0	373
Hungary	2	20	2	531	62	231	247	1,261	240	2,337
Italy	0	0	2,370	833	4	4	9,599	7,826	7	17,447
Norway	0	0	269	247	0	0	2,339	2,152	0	3,977
Netherlands	18	24	2,269	2,195	154	201	23,647	17,145	273	32,441
Poland	0	0	4	84	0	0	62	207	0	496
Portugal	—	—	126	40	—	—	675	1,069	—	1,605
Sweden	0	0	346	280	0	0	3,360	3,305	0	7,311
Switzerland	0	0	214	104	0	0	2,092	1,733	2	3,611
Czechoslovakia	0	0	650	1,085	0	0	7,557	6,332	2	13,115
Canada	0	2	256	534	7	7	2,568	2,674	9	4,760
Japan	—	—	236	240	—	—	1,508	1,034	—	1,689
Tunis	0	2	7	20	0	2	322	260	9	298
Totals	14,517	16,764	19,302	15,282	136,779	108,708	157,434	112,989	241,508	230,345

1) 3) See notes page 489.

COUNTRIES	May				FIVE MONTHS (January 1-May 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Rice. — Thousand centals (1 cental = 100 lbs).										
<i>Exporting Countries:</i>										
Spain	84	88	0	0	408	298	0	0	833	0
Italy	218	205	2	7	1,579	1,534	22	22	3,109	53
United States	317	262	11	57	1,299	1,316	112	234	2,771	328
Brazil . . . . .	...	...	—	—	256	300	—	—	1,993	—
India	5,366	5,688	196	90	28,219	24,123	295	185	48,442	692
Indo-China	2,685	2,315	—	—	11,971	9,295	—	—	21,153	—
Siam	2,948	2,383	—	—	14,526	11,330	—	—	24,818	—
Egypt . . . . .	...	...	...	...	95	348	633	42	686	836
<i>Importing Countries:</i>										
Germany	121	176	679	974	419	419	2,782	2,366	1,373	8,962
Austria	0	0	49	55	0	0	201	267	0	756
Belgium	13	13	97	119	104	64	474	478	190	1,349
Denmark	0	0	9	13	0	0	44	60	0	157
Estonia	—	—	2	2	—	—	9	11	—	33
Irish Free State . . . . .	...	...	...	...	0	0	13	20	0	53
France	86	68	791	615	359	390	2,978	2,134	937	6,792
Gr. Brit. and N. Irel.	15	20	243	364	99	95	1,230	1,105	271	2,690
Greece	—	—	84	49	—	—	271	227	—	540
Hungary	0	0	44	79	0	0	165	225	2	481
Latvia	0	0	0	2	0	0	4	31	0	82
Lithuania	0	0	2	2	0	0	7	9	0	22
Norway	0	0	9	9	0	0	26	53	0	117
Netherlands	117	269	392	465	681	1,003	1,371	1,305	2,480	4,963
Poland	57	20	159	397	157	55	342	408	606	1,726
Portugal	—	—	79	75	—	—	448	243	—	613
Sweden	—	—	90	77	—	—	90	77	—	123
Switzerland	0	0	37	26	0	0	172	168	0	454
Czechoslovakia	0	0	119	99	0	0	397	300	0	1,127
Yugoslavia	0	0	42	35	2	2	218	192	4	511
Canada	7	0	123	115	9	0	340	390	0	710
Chile . . . . .	—	—	...	...	—	—	117	174	—	441
Ceylon	0	4	756	717	2	9	4,632	4,341	18	10,196
Java and Madura . . . . .	...	...	...	...	13	46	1,916	2,983	232	6,327
Japan	26	628	373	265	51	2,247	1,197	1,043	4,195	2,773
Syria and Lebanon	0	0	31	26	0	0	159	97	0	322
Turkey . . . . .	...	...	...	...	0	0	22	53	0	183
Algeria . . . . .	...	...	...	...	0	0	46	33	2	179
Tunis	0	0	2	4	0	0	24	15	0	31
Union of South Africa . . . . .	...	...	...	...	0	0	282	298	0	1,025
Australia	7	11	2	2	44	64	29	18	161	29
New Zealand . . . . .	...	...	...	...	0	0	20	15	0	73
Totals	12,067	12,150	4,423	4,740	60,293	52,938	21,088	19,618	114,276	55,749
Linseed. — Thousand centals (1 cental = 100 lbs).										
<i>Exporting Countries:</i>										
Estonia	0	0	0	0	2	2	0	0	4	0
Lithuania	2	7	0	0	95	119	0	0	247	0
Argentina	2,244	2,026	—	—	19,943	19,705	—	—	41,454	—
India	137	333	0	0	750	897	0	0	2,515	0
Tunis	0	0	0	0	4	0	0	0	4	0
<i>Importing Countries:</i>										
Germany	0	0	807	681	7	7	3,697	4,057	13	7,507
Belgium	7	4	205	564	108	37	1,592	1,883	205	3,702
Denmark	—	—	24	60	—	—	198	220	—	417
Spain	—	—	86	44	—	—	220	194	—	465
Finland	0	0	7	11	0	0	26	37	0	68
France	0	0	531	705	4	11	2,282	2,315	18	5,814
Gr. Brit. and N. Irel.	0	0	529	765	2	4	3,459	3,702	4	7,599
Greece	0	0	9	13	0	0	26	37	0	95
Hungary	2	2	0	0	7	9	0	2	42	2
Italy	0	0	148	141	0	0	582	516	0	1,351
Latvia	0	4	0	9	18	49	31	33	106	90
Norway	0	0	24	18	0	0	168	185	0	289
Netherlands	2	7	1,226	915	66	40	4,694	4,502	49	9,233
Poland	0	0	24	99	2	4	57	192	7	273
Sweden	—	—	79	106	—	—	454	448	—	1,056
Czechoslovakia	0	0	97	84	2	2	238	229	7	582
Yugoslavia	0	0	13	24	0	0	24	71	0	126
Canada	0	271	143	0	2	273	176	0	584	194
United States	—	—	463	838	—	—	2,771	2,767	—	8,109
Japan	—	—	7	22	—	—	108	90	—	181
Australia	0	0	2	0	0	0	205	163	0	295
Totals	2,394	2,654	4,424	5,099	21,012	21,159	21,008	21,643	45,259	47,468

COUNTRIES	MAY				FIVE MONTHS (January 1-May 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Butter. — (Thousand lbs.)										
<i>Exporting Countries:</i>										
Austria	2	11	545	588	240	1,164	690	699	2,862	1,565
Denmark	31,852	33,226	115	414	146,211	154,095	723	825	378,429	1,596
Estonia	2,837	2,566	0	0	8,056	8,300	0	0	31,844	0
Irish Free State . . . . .	...	...	...	...	968	1,354	2,222	3,122	42,307	3,325
Finland	2,734	3,847	0	0	16,200	18,186	0	0	38,367	0
Hungary	174	49	0	110	1,305	589	0	112	4,065	117
Latvia	2,740	3,622	0	2	12,011	12,511	0	15	41,313	24
Lithuania	1,336	1,316	0	0	4,248	4,447	0	0	19,191	0
Netherlands	4,147	9,110	243	335	16,105	32,055	7,807	2,335	72,660	8,887
Poland	49	1,413	90	13	1,546	8,212	99	15	27,470	31
Sweden	1,808	3,183	2	0	12,531	19,835	13	4	43,162	40
U. S. S. R. . . . .	...	...	...	...	...	...	...	...	68,024	...
Argentina	2,355	2,059	...	...	29,269	26,927	...	...	51,167	...
India	18	15	31	51	123	165	183	146	364	344
Syria and Lebanon	31	88	179	4	161	573	769	121	1,817	344
Australia	14,906	13,285	0	0	91,854	85,152	0	0	208,924	0
New Zealand	11,363	15,920	...	...	98,953	98,752	...	...	220,314	...
<i>Importing Countries:</i>										
Germany	11	22	12,388	19,279	139	121	67,243	84,720	269	220,950
Belgium	212	227	2,840	2,092	955	1,001	27,276	15,159	2,756	41,562
Spain	2	7	2	7	20	40	24	20	88	121
France	538	717	1,810	3,437	2,696	3,754	14,129	27,159	11,056	40,836
Gr. Brit. and N. Irel.	1,814	1,303	77,881	80,994	27,983	21,107	379,613	361,720	40,228	903,967
Greece . . . . .	...	...	97	128	...	...	694	518	2,059	...
Italy	143	163	284	384	481	496	3,067	3,982	1,290	6,188
Norway	97	262	2	7	1,759	1,025	18	71	1,629	379
Switzerland	0	0	725	2,017	2	4	6,230	9,140	20	23,358
Czechoslovakia	0	2	314	977	26	29	1,314	1,215	661	4,107
Canada	121	280	18	214	602	492	181	2,811	10,681	2,822
United States	93	203	79	169	597	1,032	595	569	2,004	1,683
Ceylon . . . . .	...	...	40	68	...	...	240	260	...	642
Java and Madura . . . . .	...	...	...	...	...	...	3,201	3,309	...	8,514
Japan . . . . .	...	...	15	20	...	...	66	117	...	231
Algeria . . . . .	...	...	...	...	15	20	1,071	811	73	4,389
Egypt . . . . .	...	...	...	...	231	289	816	816	77	2,041
Tunis	0	0	119	84	2	2	527	390	9	930
Totals	79,383	92,896	98,019	111,391	475,326	501,444	518,284	520,181	1,323,601	1,281,252
Cheese. — (Thousand lbs.)										
<i>Exporting Countries:</i>										
Denmark	974	809	7	40	4,334	3,666	71	269	9,381	604
Finland	438	653	2	2	2,740	2,743	9	11	5,776	33
Italy	5,869	9,407	825	1,122	27,983	37,276	3,190	4,109	89,032	10,119
Lithuania	82	139	0	2	683	833	2	4	2,546	11
Norway	243	137	22	44	1,318	769	108	262	2,840	562
Netherlands	13,887	15,025	84	79	63,930	72,173	668	505	190,460	1,345
Poland	57	236	71	88	474	1,186	229	328	2,884	761
Switzerland	3,494	4,766	465	496	16,506	24,006	2,233	2,518	54,307	8,470
Czechoslovakia	423	728	258	302	3,217	3,514	1,063	1,248	10,981	3,779
Yugoslavia	64	362	13	22	633	1,296	79	106	4,198	243
Canada	1,517	1,517	119	190	4,244	3,737	430	613	84,790	1,446
Australia	97	26	0	4	2,866	2,555	2	15	7,405	24
New Zealand	16,122	12,650	0	0	91,664	100,291	0	2	181,703	4
<i>Importing Countries:</i>										
Germany	381	485	7,901	9,469	1,755	2,504	37,962	45,303	7,372	120,404
Austria	289	578	463	683	761	2,099	2,000	2,535	6,232	5,781
Belgium	51	60	3,609	3,435	251	298	16,790	18,514	814	49,600
Spain	26	37	112	370	97	115	703	1,523	236	3,867
Irish Free State . . . . .	...	...	...	...	22	33	717	814	194	2,687
France	2,105	2,469	3,957	6,843	13,184	14,681	19,407	31,813	33,239	83,031
Gr. Brit. and N. Irel.	562	597	26,731	31,257	2,974	2,961	136,971	146,740	7,346	323,691
Greece	9	33	68	439	20	104	1,076	1,490	190	3,960
Hungary	2	9	0	33	22	62	11	132	110	203
Portugal . . . . .	...	...	44	49	...	...	163	205	...	842
Sweden . . . . .	...	...	64	168	...	...	362	670	...	1,691
United States	148	154	4,339	5,855	661	831	21,698	25,122	1,865	61,992
India	0	0	66	51	0	0	348	377	7	886
Java and Madura . . . . .	...	...	...	...	...	...	395	443	...	1,658
Syria and Lebanon	7	11	82	42	20	37	403	240	86	708
Algeria . . . . .	...	...	...	...	46	44	2,355	1,753	172	11,182
Egypt . . . . .	...	...	...	...	110	33	1,415	2,727	73	7,304
Tunis	2	4	174	273	2	11	875	899	24	2,033
Totals	46,839	50,912	49,476	61,358	240,517	277,858	251,735	291,290	704,263	708,321

1) 3) See notes page 489.

COUNTRIES	MAY				TEN MONTHS (August 1-May 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Cotton. — Thousand cents (1 cental = 100 lbs).										
<i>Exporting Countries:</i>										
United States . . .	2,703	1,790	112	75	42,404	53,596	483	421	36,391	538
Argentina . . .	53	57	—	—	351	315	—	—	505	—
Brazil . . .	—	—	—	—	179	476	—	—	516	—
India . . .	542	1,133	485	214	6,199	12,990	1,385	1,378	14,881	1,876
Egypt . . .	—	—	—	—	6,257	4,980	0	0	6,669	0
<i>Importing Countries:</i>										
Germany . . .	128	128	622	542	1,411	1,420	7,377	7,258	1,706	8,442
Austria . . .	0	0	44	35	0	0	487	395	0	467
Belgium . . .	—	—	18	123	298	148	1,193	1,429	201	1,713
Denmark . . .	—	—	15	11	—	—	117	117	—	150
Spain . . .	2	2	192	157	22	22	1,978	1,859	24	2,253
Estonia . . .	0	0	3	3	0	0	62	71	0	84
Finland . . .	0	0	13	11	0	0	134	152	0	172
France . . .	44	42	399	591	448	456	3,391	7,478	549	8,131
Gr. Brit. and N. Irel.	26	55	996	686	348	395	10,842	9,672	481	10,959
Greece . . .	0	0	15	18	0	0	174	170	0	225
Hungary . . .	0	0	13	29	0	0	302	243	—	291
Italy . . .	0	0	359	333	0	2	3,488	3,269	2	3,821
Latvia . . .	0	0	4	2	0	0	44	55	0	62
Norway . . .	0	0	4	2	0	0	40	44	0	46
Netherlands . . .	0	0	42	75	7	4	769	875	7	1,043
Poland . . .	0	2	88	119	20	20	871	1,228	24	1,444
Portugal . . .	—	—	55	20	—	—	348	289	—	367
Sweden . . .	—	—	33	35	—	—	472	390	—	468
Switzerland . . .	0	0	33	35	4	0	445	522	7	608
Czechoslovakia . . .	9	13	141	161	117	132	1,746	2,050	154	2,368
Yugoslavia . . .	0	0	20	18	—	0	181	157	—	185
Canada . . .	—	—	126	86	—	—	891	926	—	1,025
Japan . . .	243	53	1,914	1,413	1,041	406	14,868	12,028	534	13,741
Algeria . . .	—	—	—	—	2	9	4	2	24	4
Totals . . .	3,772	3,293	5,816	4,814	59,108	55,371	52,090	52,458	62,675	60,448

Wool. — (Thousand lbs).

COUNTRIES					NINE MONTHS (September 1-May 31)				TWELVE MONTHS (Sept. 1-August 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
<i>Exporting Countries:</i>										
Irish Free State . .	13	335	49	64	7,130	4,561	529	417	7,965	752
Hungary . . .	—	—	—	—	1,228	2,028	—	1,402	6,931	1,612
Argentina . . . (a)	25,660	30,120	—	—	259,809	250,325	—	—	290,449	—
Chile . . . (b)	—	538	—	—	—	3,016	—	—	4,266	—
India . . .	886	5,655	496	1,404	23,215	18,927	3,695	2,829	28,455	4,857
Syria and Lebanon .	276	1,691	115	0	28,360	29,136	6,695	2,747	41,806	4,857
Algeria . . .	—	—	—	—	2,795	6,303	622	2,747	9,315	3,944
Egypt . . .	—	—	—	—	3,706	9,848	778	505	16,835	1,371
Un. of S. Africa . (a)	—	—	—	—	1,016	1,845	0	0	3,752	2
Australia . . . (b)	38,321	38,226	82	368	241,486	247,781	935	476	269,750	33
— (a)	4,581	3,439	4	0	3,556	1,894	1,667	44,830	500	—
New Zealand . . . (b)	15,428	38,345	0	0	703,416	670,926	1,894	1,667	749,742	2,337
— (a)	3,567	7,211	0	0	43,980	33,389	11	46	43,923	53
— (b)	—	—	—	—	172,755	165,446	2	0	172,382	0
— (c)	—	—	—	—	33,667	30,688	4	0	44,675	0
<i>Importing Countries:</i>										
Germany . . . (a)	121	677	25,686	34,412	8,968	7,414	187,363	249,747	11,305	329,621
Austria . . . (b)	514	1,281	2,086	3,091	7,721	9,643	23,676	23,539	13,153	30,552
Belgium . . . (a)	0	9	827	2,134	57	201	8,589	11,881	254	14,264
Denmark . . . (b)	—	—	—	—	7,031	7,643	74,311	85,191	10,311	138,435
Spain . . .	4	4	317	243	15,271	14,894	2,097	2,866	21,638	3,918
Finland . . .	64	249	1,100	1,354	141	68	3,342	2,701	93	3,591
France . . .	2	9	306	269	2,209	3,091	7,015	7,117	3,946	10,474
Gr. Brit. and N. Irel.	2,360	3,503	49,626	65,336	84	53	2,035	1,944	465	2,328
Greece . . .	36,079	28,113	116,667	96,177	35,091	40,400	300,235	386,628	51,506	480,966
Italy . . . (a)	0	13	137	375	237,606	227,297	735,800	683,235	309,823	821,498
Norway . . . (b)	33	207	21,173	8,741	77	231	1,770	2,247	392	3,025
Netherlands . . . (a)	68	765	1,038	858	1,008	1,662	111,111	78,346	2,161	96,636
Poland . . . (b)	46	57	240	84	1,252	3,360	11,601	7,059	9,399	9,399
Sweden . . .	146	192	481	366	578	514	1,819	1,288	725	1,596
Switzerland . . . (a)	152	68	511	635	1,490	1,709	5,622	7,672	2,394	8,770
Yugoslavia . . . (b)	68	194	2,046	7,544	331	315	5,661	5,291	388	7,134
Canada . . .	—	—	1,213	1,479	1,477	2,035	20,402	29,663	2,610	38,253
United States . . .	9	44	3,100	2,445	—	—	14,319	11,623	—	15,461
Japan . . .	97	220	2,458	5,613	373	265	15,693	15,474	366	18,922
Tunis . . .	4	0	181	639	1,664	1,202	24,555	6,237	1,590	36,952
— (a)	26	123	110	1,684	93	24	2,293	7,196	24	7,963
— (b)	1,237	547	2,833	14,167	4,061	1,272	4,991	9,985	2,271	12,017
— (c)	40	2	28,312	4	1,971	1,556	78,540	113,702	2,224	153,226
— (d)	15	126	11	44	77	13	165,546	93,283	13	142,252
Totals . . .	130,017	161,963	261,205	249,530	1,854,877	1,802,910	1,818,084	1,874,581	2,133,157	2,403,714

a) = Wool, greasy; b) = Wool, scoured. — 1) 3) See notes page 489.

COUNTRIES	MAY		ELEVEN MONTHS (July 1-May 31)		TWELVE MONTHS (July 1- June 30)	COUNTRIES	MAY		ELEVEN MONTHS (July 1-May 31)		TWELVE MONTHS (July 1- June 30)
	1932	1931	1931-32	1930-31	1930-31		1932	1931	1931-32	1930-31	1930-31
Coffee. — (Thousand lbs.).						Tea. — (Thousand lbs.).					
EXPORTS.						EXPORTS.					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Brazil . . . . .	...	...	11,740,776	11,998,691	2,385,736	Ceylon	28,307	24,626	219,612	220,271	247,397
India	745	1,701	16,045	22,148	23,490	India	6,770	6,072	321,400	329,074	347,401
Java and Madura . . . . .	...	...	42,746	35,254	38,105	Java and Madura . . . . .	...	...	135,269	130,424	158,936
						Japan	492	2,156	21,832	21,795	24,315
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	66	121	1,550	1,204	1,345	Belgium	0	2	20	29	31
Belgium	256	780	9,546	4,345	5,090	Irish Free State . . . . .	...	...	254	168	185
France	0	0	15	60	60	France . . . . .	...	...	57	33	35
Netherlands	1,292	1,523	13,858	17,926	19,059	Gr. Brit. and N. Ir.	1,272	5,941	73,860	80,412	87,052
Portugal	126	55	1,149	511	553	Netherlands	11	13	128	104	115
Switzerland	11	79	397	368	399	United States	15	31	461	443	476
Canada	2	4	40	51	55	Syria and Lebanon	11	0	18	13	18
United States	961	1,967	21,605	20,801	24,293	Algeria . . . . .	...	...	31	13	22
Ceylon	0	0	11	227	227	Union of S. Africa . . . . .	...	...	112	55	66
Syria and Lebanon	7	0	44	53	62	Australia	26	33	503	758	851
Australia	7	2	53	49	53	New Zealand . . . . .	...	...	71	95	115
Totals	—	—	—	—	2,498,527	Totals	36,906	38,874	773,628	783,687	867,015
IMPORTS.						IMPORTS.					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	18,107	27,553	285,151	328,556	349,956	Germany	736	913	9,850	12,081	12,741
Austria	1,523	1,812	15,181	19,083	23,268	Austria	79	64	1,032	1,171	1,409
Belgium	4,061	11,640	110,108	111,292	123,457	Belgium	40	51	624	580	639
Bulgaria	185	106	1,537	1,521	1,660	Denmark	112	132	1,232	1,206	1,296
Denmark	5,037	5,666	61,681	56,816	63,220	Spain	29	22	304	260	282
Spain	2,930	4,650	50,239	64,448	68,793	Estonia	13	13	172	134	146
Estonia	37	26	289	286	309	Irish Free State . . . . .	...	...	22,234	21,281	24,346
Irish Free State . . . . .	...	...	452	422	528	France	13	18	238	245	260
Finland	2,736	3,067	29,436	37,263	40,442	Gr. Britain and N.	249	260	3,131	3,254	3,536
France	32,115	29,990	391,686	366,010	406,168	Ireland	31,625	25,283	516,721	510,793	541,616
Gr. Britain and N. . . . .	...	...	...	...	...	Greece	112	31	697	611	644
Ireland	2,868	2,908	34,657	34,494	37,858	Hungary	24	31	540	613	650
Greece	1,351	1,204	12,496	11,969	12,959	Italy	24	26	300	295	326
Hungary	437	1,224	5,547	6,993	7,568	Latvia	9	13	119	157	168
Italy	7,624	8,841	85,456	90,756	98,430	Lithuania	11	13	115	165	179
Latvia	22	18	351	333	351	Norway	29	29	366	351	388
Lithuania	7	33	423	454	478	Netherlands	2,694	2,284	27,994	28,078	31,354
Norway	2,663	3,254	35,340	34,434	37,690	Poland	198	320	4,008	4,273	4,614
Netherlands	6,861	7,681	95,674	92,773	100,483	Portugal	46	42	624	556	597
Poland	972	1,453	15,946	16,127	17,589	Sweden	55	71	805	855	928
Portugal	855	886	10,192	11,413	11,413	Switzerland	137	165	1,636	1,592	1,731
Sweden	7,941	9,354	101,499	91,541	100,829	Czechoslovakia	93	88	1,669	1,409	1,473
Switzerland	3,616	3,858	31,412	28,651	31,608	Yugoslavia	29	35	600	606	628
Czechoslovakia	3,192	2,661	30,404	26,242	29,026	Canada	873	2,650	37,926	42,104	43,147
Yugoslavia	1,263	1,936	16,294	19,572	20,862	United States	4,566	4,134	83,183	80,198	87,151
Canada	4,092	4,381	29,363	30,922	33,689	Chile . . . . .	...	...	4,689	4,480	5,362
United States	139,416	186,774	1,486,584	1,591,668	1,728,578	Syria and Lebanon	101	4	571	340	351
Chile . . . . .	...	...	8,710	7,602	10,516	Turkey . . . . .	...	...	1,241	1,814	2,138
Ceylon	46	150	3,569	2,974	3,148	Algeria . . . . .	...	...	1,898	2,213	3,150
Japan	990	390	5,487	4,004	4,478	Egypt . . . . .	...	...	11,810	10,298	13,616
Syria and Lebanon	146	176	2,185	2,449	2,732	Tunis	276	289	6,426	2,612	2,952
Turkey . . . . .	...	...	6,843	10,408	12,853	Union of S. Africa . . . . .	...	...	10,798	11,358	13,298
Algeria . . . . .	...	...	22,893	22,509	30,827	Australia	3,627	2,683	40,925	42,876	46,441
Egypt . . . . .	...	...	13,662	11,618	14,857	New Zealand . . . . .	...	...	8,673	9,453	14,405
Tunis	256	328	2,943	2,767	3,036						
Union of S. Africa . . . . .	...	...	22,157	26,034	31,890						
Australia	558	141	2,941	2,280	2,619						
New Zealand . . . . .	...	...	359	348	430						
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
India	0	137	60	4,054	4,090	India	423	467	6,281	5,836	6,232
						Java and Madura . . . . .	...	...	8,973	10,371	11,830
Totals	251,927	322,278	3,028,607	3,169,958	3,468,687	Totals	46,223	40,131	818,405	814,519	880,024

1) 2) See notes page 489.

COUNTRIES	MAY		EIGHT MONTHS (Oct. 1-May 31)		TWELVE MONTHS (Oct. 1-Sept. 30)	COUNTRIES	MAY		TEN MONTHS (August 1-May 31)		TWELVE MONTHS (August 1-July 31)
	1932	1931	1931-32	1930-31	1930-31		1932	1931	1931-32	1930-31	1930-31
Cacao. — (Thousand lbs.)						Total Wheat and Flour (*)					
EXPORTS.						(Thousand cents).					
<i>Exporting Countries:</i>						<i>a) NET EXPORTS.</i>					
Grenada . . . . .	...	...	1) 4,883	1) 6,433	9,505	Bulgaria	342	871	6,255	2,595	3,527
Dominican Republ. . . . .	...	...	2) 15,492	1) 14,603	61,328	Spain	4) 9	4) 9	84	84	104
Brazil . . . . .	...	...	3) 119,661	1) 91,909	146,469	Hungary	518	551	9,870	9,676	10,591
Ecuador . . . . .	...	...	4) 17,809	2) 21,158	33,076	Lithuania	2	7	49	267	267
Trinidad . . . . .	...	...	5) 21,352	3) 29,765	61,569	Poland	218	130	1,530	2,288	2,586
Venezuela . . . . .	...	...	6) 9,819	3) 19,828	45,076	Rumania . . . . .	...	...	2) 21,799	1) 7,632	9,608
Ceylon	556	461	7) 8,303	6,629	8,360	U. S. S. R. . . . .	...	...	3) 37,428	2) 50,087	67,735
Java and Madura . . . . .	...	...	8) 1,199	1) 1,144	2,073	Yugoslavia	163	13	8,287	2,956	3,362
Cameroon . . . . .	...	...	9) 21,603	2) 21,096	30,126	Canada	10,518	18,955	99,696	132,342	154,489
Ivory Coast . . . . .	...	...	10) 43,806	1) 40,759	43,363	United States	4,848	5,267	58,509	50,012	65,519
Gold Coast	9,725	22,117	399,574	429,883	486,374	Argentina	7,976	12,593	77,916	59,845	74,466
Nigeria . . . . .	...	...	11) 98,443	1) 99,270	116,385	Chile . . . . .	...	...	1) 26	1) 556	567
St. Thomas and Prinice Is.	1,576	2,330	17,624	20,675	26,764	British India	83	4) 990	4) 216	4) 282	282
Togoland . . . . .	...	...	12) 12,566	1) 14,522	16,400	Turkey . . . . .	...	...	1) 758	1) 6,052	5,719
						Algeria . . . . .	...	...	3) 1,649	3) 1,188	3,481
						Tunis	108	4) 1,933	4) 80,665	72,951	90,379
						Australia	10,624	9,568	80,665	72,951	90,379
<i>Importing Countries:</i>						Totals	35,405	47,964	407,358	399,025	492,982
Germany	18	0	474	432	454						
Belgium	73	66	723	476	809						
France	0	0	2	223	223						
Netherlands	143	873	4,526	8,250	10,679						
Czechoslovakia	0	0	0	13	18						
United States	569	811	5,606	5,701	8,521						
Australia	0	0	119	37	86						
Totals	12,660	26,658	803,584	832,806	1,109,058						
IMPORTS.						b) NET IMPORTS.					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	9,901	18,197	134,039	136,828	180,001	Germany	1,120	1,307	6,202	13,437	18,689
Austria	840	1,111	8,990	8,329	10,662	Austria	425	902	6,209	6,764	9,345
Belgium	1,204	2,815	17,070	19,703	25,532	Belgium	2,842	1,658	22,212	22,875	29,125
Bulgaria	284	117	1,038	626	774	Denmark	637	712	9,087	5,340	6,894
Denmark	1,140	849	5,736	5,820	7,648	Spain	126	5) 141	5) 141	5) 141	5) 141
Spain	2,141	2,760	17,518	18,642	22,472	Estonia	33	29	254	414	485
Estonia	42	44	423	309	478	Irish Free State . . . . .	...	...	1) 8,863	1) 8,669	11,286
Irish Free State . . . . .	...	...	1) 871	1) 1,464	1,786	Finland	198	212	2,141	2,482	2,956
Finland	13	13	128	161	220	France	5,560	3,256	35,215	24,692	36,493
France	7,489	7,961	63,028	61,007	90,116	Gr. Brit. and N. Ir.	10,088	9,544	121,191	110,600	134,811
Gr. Brit. and N. Ir.	7,244	6,224	100,073	99,557	141,747	Greece	1,340	1,437	12,106	11,599	14,454
Greece	395	220	2,546	1,737	2,480	Italy	4,010	4,947	14,264	40,464	48,811
Hungary	227	595	3,759	3,913	5,432	Latvia	29	42	395	833	935
Italy	1,195	1,424	10,468	12,159	16,619	Norway	126	406	4,422	4,109	4,985
Latvia	209	236	1,248	1,215	1,724	Netherlands	1,213	1,334	14,295	17,589	20,858
Lithuania	77	46	434	525	708	Portugal	68	99	734	509	1,607
Norway	487	79	4,491	2,606	4,705	Sweden	128	190	3,135	2,648	2,939
Netherlands	7,842	12,924	73,478	119,830	147,201	Switzerland	6) 906	6) 696	10,763	9,343	11,094
Poland	646	959	7,723	8,882	12,313	Czechoslovakia	1,122	602	12,392	8,761	10,302
Sweden	694	831	8,843	6,510	9,092	Ceylon	37	33	483	485	597
Switzerland	1,016	3,426	9,140	21,257	25,803	India	5) 265	5) 265	2,425	3,062	3,571
Czechoslovakia	3,587	1,872	15,159	12,674	18,237	Indo-China	51	37	461	496	571
Yugoslavia	201	73	1,036	1,005	1,473	Japan	1,010	1,534	10,265	8,483	10,964
Canada	2,820	2,191	11,879	11,929	15,371	Java and Madura . . . . .	...	...	1) 1,162	1) 972	1,367
United States	23,781	50,444	319,297	271,639	406,686	Syria and Lebanon	152	15	42	82	101
Australia	525	657	7,132	4,182	7,308	Egypt . . . . .	...	...	3) 3,596	4) 4,497	5,763
New Zealand . . . . .	...	...	1) 1,005	930	1,504	Tunis	5) 11	5) 11	5) 11	5) 11	5) 11
						Union of South Afr. . . . .	...	...	1) 902	1) 1,603	1,938
						New Zealand . . . . .	...	...	1) 302	1) 320	437
Totals	74,000	116,068	826,552	833,439	1,156,092	Totals	31,221	29,271	301,634	310,491	390,869

*) Flour reduced to grain on the basis of the coefficient: 1,000 cents of flour — 1,333.33 cents of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 30th April. — 2) Data up to 31st December. — 3) Data up to 31st March. — 4) See Net Imports. — 5) See Net Exports. — 6) Wheat only.

STOCKS

STOCKS OF CEREALS AND POTATOES IN FARMERS' HANDS IN GERMANY, ON 15 JUNE.

PRODUCTS	% Stocks: total production				
	15 June 1932	15 May 1932	15 April 1932	15 June 1931	15 June 1930
Winter wheat	3.6	5.9	10.4	2.8	3.3
Spring wheat	5.1	9.4	19.8	3.5	3.0
Winter rye	4.5	8.4	12.2	6.7	11.3
Winter barley	2.4	4.5	6.9	2.9	6.1
Spring barley	4.6	7.6	12.8	2.5	4.7
Oats	13.3	19.1	28.8	14.8	18.9
Potatoes	3.8	8.4	21.9	3.8	5.7

Authority: Preisberichtsstelle beim Deutschen Landwirtschaftsrat.

STOCKS OF CEREALS IN COMMERCIAL ELEVATORS AND MILLS IN GERMANY 1).

PRODUCTS	Last day of month			Last day of month		
	June 1932	May 1932	April 1932	June 1932	May 1932	April 1932
	1,000 centals			1,000 bushels or barrels		
WHEAT:						
Grain	5,935	8,905	9,588	9,891	14,841	15,980
Flour for bread	2,549	2,606	2,776	1,300	1,330	1,416
TOTAL 2)	9,332	12,380	13,289	15,553	20,634	22,147
RYE:						
Grain	5,064	7,608	8,201	9,043	13,586	14,645
Flour for bread	816	1,235	1,316	416	630	672
TOTAL 2)	6,151	9,235	9,956	10,984	16,526	17,781
BARLEY	944	1,561	2,046	1,966	3,252	4,262
OATS	1,049	1,442	1,720	3,279	4,506	5,374

1) See note under the corresponding table in the Bulletin for March, at page 218. — 2) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of flour = 1,353.33 centals of grain (1,000 barrels of flour = 4,355.55 bushels of wheat or 4,584.80 bushels of rye).

QUANTITIES OF CEREALS ON OCEAN PASSAGE WITH FIRST DESTINATION FOR EUROPE.

PRODUCTS	Saturday nearest to 1st of month					Saturday nearest to 1st of month				
	July 1932	June 1932	May 1932	July 1931	July 1930	July 1932	June 1932	May 1932	July 1931	July 1930
	1,000 centals					1,000 bushels				
Wheat (and flour in terms of wheat)	27,101	37,886	32,909	29,890	22,522	45,168	63,144	54,848	49,816	37,536
Rye	1,032	1,603	2,208	730	43	1,843	2,863	3,943	1,303	77
Barley	1,740	2,348	1,816	3,680	1,636	3,625	4,892	3,783	7,667	3,408
Oats	650	2,906	3,069	1,898	992	2,030	9,080	9,590	5,930	3,100
Maize	20,832	18,547	19,435	25,877	8,242	37,200	33,120	34,706	46,209	14,717

Authority: Broomhall's Corn Trade News.

STOCKS OF OLD CROP WHEAT IN FARMERS' HANDS IN THE UNITED STATES.

YEAR	% stocks: production			Estimated stocks in absolute figures					
	1 July	1 April	1 March	1 July	1 April	1 March	1 July	1 April	1 March
				1,000 centals			1,000 bushels		
1930	5.8	12.6	15.9	28,297	61,264	77,641	47,161	102,106	129,402
1931	3.7	13.5	18.8	19,119	69,404	96,865	31,865	115,673	161,442
1932	8.1	17.8	23.2	43,155	95,365	124,394	71,925	158,942	207,323

COMMERCIAL CEREALS IN STORE IN CANADA AND THE UNITED STATES.

SPECIFICATION	Friday or Saturday nearest to 1st of month					Friday or Saturday nearest to 1st of month				
	July 1932	June 1932	May 1932	July 1931	July 1930	July 1932	June 1932	May 1932	July 1931	July 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Canadian in Canada	80,424	85,229	95,989	64,716	63,777	134,040	142,049	159,982	107,860	106,296
U. S. in Canada	9,537	10,952	16,123	9,208	2,655	15,895	18,254	26,872	15,347	4,424
U. S. in the United States .	100,991	104,465	111,943	122,505	65,596	168,318	174,109	186,572	204,175	109,327
Canad. in the United States.	2,719	4,322	2,780	3,613	9,861	4,532	7,203	4,634	6,021	16,435
Total . . .	193,671	204,968	226,835	200,042	141,889	322,785	341,615	378,060	333,403	236,482
RYE:										
Canadian in Canada	3,957	5,400	5,793	7,023	4,434	7,066	9,642	10,345	12,541	7,918
U. S. in Canada	136	127	119	928	2,122	242	226	213	1,657	3,789
U. S. in the United States .	5,008	5,272	5,316	5,687	6,989	8,942	9,415	9,493	10,155	12,481
Canad. in the United States	279	336	445	1	105	498	600	795	2	188
Total . . .	9,380	11,135	11,673	13,639	13,650	16,748	19,883	20,846	24,355	24,376
BARLEY:										
Canadian in Canada	2,085	3,083	3,816	5,356	9,490	4,344	6,423	7,949	11,158	19,770
U. S. in Canada	3	43	12	22	433	6	89	25	45	902
U. S. in the United States .	1,340	1,442	2,271	3,277	3,056	2,791	3,004	4,731	6,827	6,366
Canad. in the United States .	27	136	610	78	1,140	57	283	1,271	163	2,376
Total . . .	3,455	4,704	6,709	8,733	14,119	7,198	9,799	13,976	18,193	29,414
OATS: (1)										
Canadian in Canada	1,924	2,191	3,758	3,085	2,892	6,013	6,846	11,745	9,641	9,038
U. S. in Canada	43	54	25	164	269	134	169	78	514	841
U. S. in the United States .	3,403	3,604	4,398	2,416	3,529	10,635	11,262	13,745	7,550	11,028
Canad. in the United States .	0	0	0	18	29	0	0	1	55	91
Total . . .	5,370	5,849	8,181	5,683	6,719	16,782	18,277	25,569	17,760	20,998
MAIZE:										
U. S. in Canada	402	621	589	98	296	717	1,109	1,051	176	528
Of other origin in Canada .	707	660	676	262	419	1,263	1,178	1,207	467	748
U. S. in the United States .	9,077	11,596	12,328	4,602	3,947	16,209	20,708	22,015	8,217	7,049
Total . . .	10,186	12,877	13,593	4,962	4,662	18,189	22,995	24,273	8,860	8,325

1) For oats the bushel is of 32 lbs.

GRAIN AND FLOUR STOCKS AT THE PORTS OF GREAT BRITAIN AND IRELAND 1).

PRODUCTS	First of the month					First of the month				
	July 1932	June 1932	May 1932	July 1932	July 1930	July 1932	June 1932	May 1932	July 1931	July 1930
	1000 centals					1000 bushels				
WHEAT:										
Grain	5,688	6,048	7,896	3,360	3,216	9,480	10,080	13,160	5,600	5,360
Flour as grain . .	888	720	768	624	624	1,480	1,200	1,280	1,040	1,040
TOTAL	6,576	6,768	8,664	3,984	3,840	10,960	11,280	14,440	6,640	6,400
Barley	700	680	800	600	920	1,458	1,417	1,667	1,250	1,917
Oats	576	432	464	528	928	1,800	1,350	1,450	1,650	2,900
Maize	2,448	2,256	2,640	1,584	1,488	4,371	4,029	4,714	2,829	2,657

Authority: *Broomhall's Corn Trade News*.

1) Imported cereals.

STOCKS OF COTTON IN EUROPE.

COUNTRIES, PORTS, DESCRIPTIONS	Thursday or Friday nearest to 1st of month					Thursday or Friday nearest to 1st of month				
	July 1932	June 1932	May 1932	July 1931	July 1930	July 1932	June 1932	May 1932	July 1931	July 1930
	1000 centals					1000 bales (1 bale = 478 lbs.)				
Great Britain:										
American	1,931	2,008	2,022	2,286	1,528	404	420	423	478	320
Argentine, Brazil- ian, etc.	53	28	40	191	514	11	6	8	40	108
Peruvian, etc. . .	177	137	142	224	241	37	29	30	47	50
East Indian, etc.	392	411	481	800	290	82	86	101	168	61
Egyptian, Sudan- ese	1,652	1,823	1,714	1,368	1,310	346	381	358	286	274
Other 1)	119	113	104	244	318	25	24	22	51	66
TOTAL	4,324	4,520	4,503	5,113	4,201	905	946	942	1,070	879
Bremen:										
American	1,582	1,579	1,460	1,856	1,492	330	330	305	388	312
Other	29	27	23	61	52	7	6	5	13	11
TOTAL	1,611	1,606	1,483	1,917	1,544	337	336	310	401	323
Le Havre:										
American	799	801	857	1,360	743	167	168	179	285	156
Other	72	61	57	178	173	15	13	12	37	36
TOTAL	871	862	914	1,538	916	182	181	191	322	192
Total Continent 2):										
American	3,108	3,217	3,173	3,800	2,608	650	673	664	795	546
Argentine, Brazil- ian, etc.	35	30	27	106	63	7	6	5	22	13
E. Indian, Austral- ian, etc.	74	66	85	228	198	15	14	18	48	42
Egyptian	127	123	138	99	102	27	26	29	21	21
W. Indian, W. Af- rican, E. Afri- can, etc.	32	32	19	57	116	7	7	4	12	24
TOTAL	3,376	3,468	3,442	4,290	3,087	706	726	720	898	647

Authority: *Liverpool Cotton Ass.*

1) Includes: W. Indian, etc., E. African, etc.; W. African, and Australian. — 2) Includes Bremen, Havre, and other Continental ports

STOCKS OF COTTON ON HAND IN THE UNITED STATES.

LOCATION	Last day of the month					Last day of the month				
	June 1932	May 1932	April 1932	June 1931	June 1930	June 1932	May 1932	April 1932	June 1931	June 1930
	1000 centals					1000 bales (counting round as half bales)				
In consuming establishments	6,502	7,191	7,535	5,475	6,600	1,323	1,463	1,533	1,131	1,357
In public storage and at compresses . .	35,192	37,432	40,164	24,075	15,131	7,154	7,609	8,164	4,971	3,105
TOTAL . .	41,694	44,623	47,699	29,550	21,731	8,477	9,072	9,697	6,102	4,462

STOCKS OF COTTON AT BOMBAY AND AT ALEXANDRIA.

PORTS	Thursday nearest to 1st of month					Thursday nearest to 1st of month				
	July 1932	June 1932	May 1932	July 1931	July 1930	July 1932	June 1932	May 1932	July 1931	July 1930
	1000 centals					1000 bales (1 bale = 478 lbs.)				
Bombay 1)	3,356	3,396	3,024	3,439	4,592	702	710	633	719	961
Alexandria	4,009	4,378	4,676	4,671	3,693	839	916	978	977	773

Authorities: *East Indian Cotton Ass.* and *Commission de la Bourse de Minet-el-Bassal.*

1) Stocks held by exporters, dealers and mills.

IMPORT DUTIES ON CEREALS AND FLOUR

CHANGES TO BE MADE IN THE DUTIES PUBLISHED ON PAGES 160 TO 163 OF THE CROP REPORT FOR FEBRUARY
(SEE ALSO THE SAME HEADING IN THE PRECEDING CROP REPORTS FOR THIS YEAR).

COUNTRY	PRODUCT	Date when enforced	Original data per metric quintal	Data in Amer. cents per bushel or barrel
Germany	Wheat for poultry feeding, without special licence 1)	24 June	exempt	exempt
"	Barley for stock-feeding 2)	1 July	R. M. 18.00	93.38
"	Barley, other 2)	"	" 20.00	103.76
"	Wheat flour and rye flour 2)	"	" 43.17	914.51
"	Wheat, on export of equivalent amount before 31 October 1932 3)	1 August	exempt	exempt
"	Wheat, on export of equivalent amount between 1 November 1932 and 31 January 1933 3)	"	R. M. 0.75	4.86
"	Hard wheat imported under customs supervision for manufacture of hard wheat groats 4)	"	" 16.20	105.06
"	Rye, on export of equivalent amount before 31 October 1932 3)	"	exempt	exempt
"	Rye, on export of equivalent amount between 1 November 1932 and 31 January 1933 3)	"	R. M. 0.50	3.03
Spain	Wheat	16 June	5)	5)
Estonia	Rye and rye flour, maize	22 June	6)	6)
Irish Free State	Wheat flour	7 July	5 s. 7)	85.08 7)
France	Wheat, rye, barley, oats, wheat flour and rye flour	18 June	8)	8)
Great Britain and Northern Ireland	Wheat flour 9)	19 June	2s 3d 10)	48.67 10)
Italy	Maize, other than white 11)	4 July	lire 10.00	13.38
Czechoslovakia	Rye, supplementary duty	9 July	Kc. 27.00	20.38
Jugoslavia	Wheat flour and rye flour	1 June	gold dinars 16.00	274.45

1) Period of import prolonged from 30 June to 10 July. — 2) Special duties on imports from Canada are abolished (see *Crop Report* of March, p. 230). — 3) In case of delivery of evidence of authorised export duty valid until 31 July 1933. — 4) Hard wheat imported for mills that manufactured groats in 1931 up to 31 July 1933 and to 45% of the amount used in 1931. — 5) With the conditions mentioned in the *Crop Report* of June, the import of a further quota of 250,000 quintals is authorised. — 6) Import licences are abolished. — 7) Duty per 280 lbs. In case of deficit in home production import may be permitted without payment of customs duty. — 8) In addition to general duties an *ad valorem* duty of 15 % is levied on shipments originating in Paraguay and Portugal. — 9) Compensatory duty. — 10) Duty per 280 lb. — 11) Duty limited to 40,000 quintals per annum originating in Italian colonies.

MONTHLY REVIEW OF PRICES 1)

PRODUCTS, MARKETS AND DESCRIPTION	AVERAGE 2)									
	15	8	1	24					Commercial	
	July	July	July	June	June	July	July	July	Season	
	1932	1932	1932	1932	1932	1932	1932	1932	1930-31	1929-30
WHEAT.										
Budapest (b): Tisza region (78-80 kg. p. hl.; pengő p. quintal)	13.42	13.37	12.75	12.17	12.45	15.34	22.94	15.34	22.94	
Braha: Good quality (lei p. quintal)	315	300	305	310	329	277	507	351	612	
Winnipeg: No. 1 Manitoba (cents p. 60 lbs.)	55 3/8	54 1/8	53 1/8	53 1/8	55 7/8	57 1/8	96	64 1/4	124 3/8	
Chicago: No. 2 Hard Winter (cents p. 60 lbs.)	47 1/2	51	48 3/4	48 3/4	51 1/4	52 1/8	89	78	114 1/8	
Minneapolis: No. 1 Northern (cents p. 60 lbs.)	51 1/4	55	53 1/4	52 1/4	57 1/8	64 1/4	89 3/8	77 7/8	117 1/2	
New-York: No. 2 Hard Winter (cents p. 60 lbs.)	56 3/4	65 1/8	61 1/8	61 7/8	64 1/4	n. q.	95 1/8	91 1/8	121 1/8	
Buenos Aires (a): Barilleta (80 kg. p. hectol. — pesos paper p. quintal)	6.55	6.57	6.60	6.70	6.85	5.38	9.97	6.83	10.65	
Karachi: Karachi white, 2 3/4 % barley, 1 1/2 % dirt (rupees p. 656 lbs.)	25-12-0	25-2-0	24-2-0	23-5-0	22-14-3	16-1-2	26-11-0	19-15-2	36-6-9	
Berlin: Home-grown (Reichsmarks p. quintal)	23.60	24.30	n. q.	25.60	25.87	24.06	28.75	26.00	25.33	
Hamburg, c. i. f. (Reichsmarks p. quintal):										
No. 3 Manitoba	4) 8.67	4) 8.85	4) 8.78	4) 8.81	4) 9.26	4) 10.92	4) 16.80	4) 12.65	21.30	
No. 2 Hard Winter	5) 9.30	9.11	n. q.	n. q.	n. q.	9.35	9.53	15.88	19.49	
Barusso (70 kg. p. hectol.)	6) 8.28	6) 8.42	6) 8.31	6) 8.47	6) 8.72	8.91	7) 16.00	11.10	18.72	
Antwerp (Belgian francs p. quintal):										
Home-grown	n. q.	n. q.	n. q.	n. q.	85.30	98.50	152.50	95.50	154.75	
No. 2 Hard Winter, Gulf	5) 79.00	5) 75.00	5) 76.00	5) 78.00	82.50	n. 82.00	141.00	112.50	171.00	
Paris: Home-grown, 75-77 kg. (francs p. quintal)	153.50	154.00	159.00	172.25	170.50	168.80	155.90	175.00	139.40	
London: Home-grown (shillings p. 504 lbs.)	28 6	28 -	28 -	28 6	28 1	28 6	36 6	27 1	40 10	
London and Liverpool c. i. f., shipping current month (shillings p. 480 lbs.) 8):										
South Russian (on sample)	9) 23 3	9) 23 9	n. q.	n. q.	n. q.	20 8	n. q.	23 7	n. q.	
No. 3 Manitoba	23 3	23 9	23 3	23 6	24 -	21 1	35 8	25 4	45 2	
No. 2 Hard Winter	24 6	25 3	24 9	23 9	24 8	20 5	33 7	26 4	41 5	
White Pacific	9) 24 6	9) 25 -	25 6	25 -	26 -	20 11	34 4	26 7	42 3	
Rosafe (63 1/2 lbs.), aloaf	10) 24 6	10) 23 9	10) 24 -	10) 23 3	10) 24 -	11) 18 11	12) 33 8	23 5	40 3	
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	21 8	34 6	27 -	42 2	
Australian	23 6	23 9	23 6	23 9	25 3	21 5	36 5	25 7	43 6	
Milan (b): Home-grown, soft (lire p. quintal)	95.50	95.50	110.00	114.50	112.75	90.90	124.25	109.10	131.30	
Genoa c. i. f. (shillings p. metric ton): La Plata	n. q.	n. q.	n. q.	n. q.	13) 210	n. 87 -	155 3	110 -	184 6	
RYE.										
Budapest (b): Home-grown (pengő p. quintal)	14) 8.85	14) 8.82	12.35	12.05	12.57	11.80	11.26	10.79	13.44	
Berlin: Home-grown (Reichsmarks per quintal)	n. q.	18.80	18.85	18.60	19.00	18.21	17.19	17.18	17.04	
Hamburg c. i. f.: La Plata, 74-75 kg. (R. M. p. quintal)	6.92	6.89	7.07	7.06	7.38	7.60	n. q.	n. 7.65	14.57	
Minneapolis: No. 2 (cents p. 56 lbs.)	30	32 1/2	31 1/2	31 3/4	32 1/2	37 1/8	54	42 1/8	80 1/8	
Groningen (c): Home-grown (florins p. quintal)	5.70	n. q.	5.90	5.90	5.92	4.23	4.68	4.45	6.33	
BARLEY.										
Braha: Average quality (lei p. quintal) (3)	225	230	250	250	262	256	246	232	304	
Winnipeg: No. 4 Western (cents p. 48 lbs.)	32 7/8	33 3/8	33 1/2	34 7/8	34 1/2	30 3/4	35 1/8	26 1/8	51 7/8	
Chicago: Feeding (cents p. 48 lbs.)	30 1/2	31 1/2	31 1/2	34	35 1/2	38 3/8	48	43 7/8	57 3/8	
Berlin: Home-grown fodder (Reichsmarks per quintal)	15.85	16.70	16.70	16.70	17.04	15.75	18.14	19.52	17.40	
Antwerp: Danube (francs p. quintal)	73.00	72.00	73.00	75.00	78.00	75.00	74.00	73.25	107.50	
London: English malting (shillings p. 448 lbs.)	n. q.	n. q.	n. q.	n. q.	n. q.	32 6	29 6	35 8	39 -	
London and Liverpool, c. i. f., parcels (shillings per 400 lbs.):										
Danubian 3 %	n. q.	n. q.	n. q.	n. q.	n. q.	15 -	15 9	15 2	22 3	
Russian (Azoff-Black sea)	9) 16 7 1/2	9) 17 -	9) 17 3	9) 18 3	9) 18 6	9) 14 4	15 8	14 3	18 11	
Canadian Western, N. 3	18 10 1/2	19 4 1/2	19 6	20 -	19 10	15 11	n. q.	15 11	27 -	
Carnian malting (shillings p. 448 lbs.)	22 -	22 -	23 -	23 -	24 -	31 8	25 9	27 8	32 6	
Groningen (c): Home-grown winter (fl. p. quintal)	6.40	n. q.	6.90	6.70	6.45	5.48	5.87	4.97	7.55	

a) Thursday prices. — b) Saturday prices. — c) Prices of preceding Tuesday.

1) All quotations are, unless otherwise stated, for spots. — 2) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 3) 30 June. — 4) No. 2 Manitoba. — 5) No. 1 Hard Winter. — 6) 80 Kg. p. hl. — 7) 78 Kg. p. hl. — 8) German (on sample): 15 July: 21/-; 8 July: 21/3; 1st July: 21/9. — 9) Shipping August-September. — 10) 64 lbs. p. bushel. — 11) 63 lbs. p. bushel. — 12) 62 1/2 lbs. p. bushel. — 13) Price in \$ per quintal. — 14) New crop.

PRODUCTS, MARKETS AND DESCRIPTION	15	8	1	24	AVERAGE (1)				Commercial Season	
	July	July	July	June	June	July	July		1930-31	1929-30
	1932	1932	1932	1932	1932	1931	1930			
OATS.										
Braila: Good quality (lei p. quintal)	220	240	260	280	282	318	221	247	256	
Winnipeg: No. 2 White (cents per 34 lbs.)	33 ³ / ₈	33 ³ / ₈	33 ³ / ₈	33 ³ / ₈	33 ³ / ₈	29 ¹ / ₄	42 ³ / ₈	30	58 ³ / ₈	
Chicago: No. 2 White (cents per 32 lbs.)	20 ¹ / ₄	21 ¹ / ₄	20 ¹ / ₂	21 ¹ / ₂	22 ¹ / ₄	26 ¹ / ₄	36 ³ / ₄	32 ⁷ / ₈	44 ³ / ₈	
Buenos Aires (a): Current quality (pesos paper p. quintal)	5.50	5.50	5.50	5.40	5.46	3.99	4.01	3.58	5.30	
Berlin: Home grown (Reichsmarks p. quintal)	15.65	16.10	15.80	16.25	16.07	15.89	17.12	16.17	15.62	
Paris: Home grown, black and other (francs p. quintal)	117.00	115.50	111.50	115.75	112.45	85.20	70.55	81.00	81.15	
London: Home grown white (shillings p. 336 lbs.)	24/6	24/6	24/6	24/6	24/6	20/4	18/6	18/4	21/-	
London and Liverpool c. i. f., parcels (shillings p. 320 lbs.):										
Danubian (39-40 lbs.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	2) 12/6	n. 12/1	2) n. 16/4	
Plate (f. a. q.)	14/1 ¹ / ₂	14/1 ¹ / ₂	14/1 ¹ / ₂	14/3	14/2	10/6	11/10	10/9	16/1	
Chilian Tawny	n. q.	n. q.	n. q.	n. q.	n. q.	11/6	12/7	12/-	17/3	
Milan (b): spot (lire p. quintal):										
Home grown	n. q.	n. 72.50	n. 72.50	n. 72.50	n. 73.50	66.75	71.00	73.95	80.75	
Foreign imported	61.50	61.50	61.50	64.00	64.00	63.00	62.00	60.40	74.30	
MAIZE.										
Braila: Danube (lei p. quintal)	191	192	200	198	193	238	336	210	309	
Chicago: No. 2 Mixed American (cents p. 56 lbs.)	32 ¹ / ₂	31 ¹ / ₄	30	31 ¹ / ₄	31 ¹ / ₄	61	81 ¹ / ₄	58 ¹ / ₄	85 ⁷ / ₈	
Buenos Aires (a): Yellow Plate (pesos paper p. quintal)	4.72	4.77	4.62	4.65	4.62	3.80	5.89	3.82	6.17	
Antwerp, spot (Belgian francs p. quintal):										
Bessarabian	n. q.	n. q.	n. q.	n. q.	n. q.	75.00	99.50	71.25	n. 97.50	
Cinquantino	71.00	70.00	69.00	66.00	65.25	76.00	137.50	81.00	131.25	
Yellow Plate	59.00	56.50	58.00	56.50	57.10	62.00	107.50	65.00	109.25	
London and Liverpool, parcels, c. i. f. (shillings p. 480 lbs.):										
Danube	19/7 ¹ / ₂ (3)	19/4 ¹ / ₂ (3)	19/-	19/-	18/9	n. c.	23/11	n. 17/4	24/11	
Yellow Plate	18/1 ¹ / ₂	18/7 ¹ / ₂	18/-	18/-	17/6	14/3	24/4	15/6	25/3	
No. 2 White African	n. q.	n. q.	n. q.	n. q.	n. q.	19/-	23/4	n. 18/11	26/-	
Milan (b): Home grown (lire p. quintal)	77.50	76.50	75.50	74.50	73.50	49.30	68.00	51.90	71.35	
RICE (CLEANED).										
								1931	1930	
Milan (b): Maratelli (lire p. quintal)	157.00	154.00	153.00	153.00	155.00	108.40	165.90	117.35	152.15	
Rangoon: No. 2 Burma (rupees p. 7500 lbs.)	275	265	267 ¹ / ₂	270	276 ⁷ / ₈	230 ¹ / ₂	421	249 ³ / ₄	393 ³ / ₄	
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white (25 % broken) . . . . .	...	...	...	...	...	n. 6.48	11.87	6.73	11.36	
N. 2 Japan (40 % broken) . . . . .	...	...	...	...	...	5.90	11.48	6.20	10.89	
London (a): c. i. f. (shillings p. 112 lbs.):										
Spanish Belloch, No. 3 oiled	13/4 ¹ / ₂	13/6	13/9	13/7 ¹ / ₂	13/7	11/3	14/10	11/11	14/1	
Italian good, No. 6 oiled	14/-	14/-	14/-	14/-	14/6	n. c.	15/3	13/7	14/11	
American Blue Rose	15/9	15/9	15/9	15/9	15/9	17/11	23/1	18/7	21/9	
Burma, No. 2	8/-	7/10 ¹ / ₂	7/10 ¹ / ₂	7/10 ¹ / ₂	8/1	7/2	11/6	7/11	10/11	
Saigon, No. 1	8/3	8/1 ¹ / ₂	8/1 ¹ / ₂	8/3	8/5	7/5	11/7	8/1	11/6	
Siam, Garden, No. 1	4) 8/9	4) 8/9	4) 8/10 ¹ / ₂	4) 8/10 ¹ / ₂	9/-	8/-	15/1	9/5	14/-	
Tokio: Various qualities (yens p. koku) . . . . .	...	...	...	...	...	19.94	28.98	18.46	25.57	
LINSEED.										
Buenos Aires (a): Current quality (pesos paper p. quintal)	8.75	9.10	8.55	8.55	8.67	11.81	17.05	10.82	17.19	
Antwerp: Plate (Belgian francs p. quintal)	100.00	95.50	95.50	96.00	97.50	161.00	269.50	146.00	284.25	
Hull, c. i. f.: Plate (p. sterling p. 1 ton)	7-16-3	8-0-0	7-12-6	7-10-0	7-10-7	8-16-6	15-2-10	8-14-1	15-0-5	
London, c. i. f.: Bombay bold (p. st. p. long ton)	10-15-0	10-12-6	10-5-0	10-2-6	10-5-7	11-19-0	17-5-4	11-9-6	17-14-4	
Duluth: No. 1, Northern (cents p. 56 lbs.)	100	105 ¹ / ₄	104 ¹ / ₄	105 ³ / ₈	107 ¹ / ₄	162 ³ / ₄	209	148	236	

a) Thursday prices. — b) Saturday prices.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) Weight not indicated. — 3) Bessarabian.

— 4) Siam special.

PRODUCTS, MARKETS AND DESCRIPTION	AVERAGE 1)								Commercial Season	
	15	8	1	24						
	July 1932	July 1932	July 1932	June 1932	June 1932	July 1932	July 1932	July 1932	1930-31	1929-30
COTTON-SEED.										
Alexandria: Sakellariadis (piastres per ardeb)	59.7	61.0	54.9	53.3	51.8	46.2	60.8	52.2	67.9	
Hull: Sakellariadis (p. sterl. per long ton)	6-1-3	6-6-3	5-13-9	5-7-6	5-5-7	4-19-0	6-4-8	5-12-6	6-18-2	
COTTON.										
New Orleans: Middling (cents per lbs.)	5.71	5.92	5.61	5.16	5.15	9.09	12.72	10.07	16.17	
New York: Middling (cents per lbs.)	5.85	6.10	5.75	5.30	5.20	9.22	13.21	10.38	16.60	
Bombay: M. g. Broach f. g. (rupees per 784 lbs.)	165	173	165	157	156	177	190	191 3/4	283 1/2	
Alexandria (a) (talariis per kantar):										
Sakellariadis f. g. f.	12.82	12.92	11.82	11.42	10.51	13.76	27 1/2	17.12	28 1/2	
Ashmuni (Upper Egypt) f. g. f.	10.25	10.55	9.90	9.60	8.92	10.18	19 1/2	12.00	19 1/2	
Bremen: Middling (U. S. cents per lbs.)	6.71	7.07	6.78	6.42	6.30	10.55	15.06	11.59	18.27	
M. g. Broach fully good (pence per lbs.)	n. 4.10	n. 4.20	n. 3.95	n. 3.80	n. 3.85	n. 4.30	n. 4.75	n. 4.63	n. 6.83	
Le Havre: Middling, Gulf (frances per 50 kgs.)	200	214	199	...	...	312	437	346	545	
Liverpool (pence per lbs.):										
Middling fair	n. 5.58	n. 5.79	n. 5.57	n. 5.36	n. 5.19	n. 6.26	n. 8.93	n. 6.93	n. 10.39	
Middling	n. 4.66	n. 4.87	n. 4.65	n. 4.41	n. 4.23	n. 5.06	n. 7.63	n. 5.72	n. 9.09	
São Paulo, good fair	n. 4.88	n. 5.09	n. 4.87	n. 4.61	n. 4.44	n. 5.26	n. 7.39	n. 5.91	n. 9.02	
M. g. Broach, fully good	n. 4.15	n. 4.37	n. 4.18	n. 3.96	n. 3.77	n. 4.16	n. 5.06	n. 4.25	n. 6.80	
Sakellariadis, fully good fair	n. 6.65	n. 6.90	n. 6.40	n. 6.30	n. 5.87	n. 7.68	n. 12.37	n. 9.08	n. 14.52	
BUTTER.										
								1931	1930	
Copenhagen (a) (Kr. p. quintal)	170	156	150	145	145	190	248	209	245	
Maastricht, auction (b): Dutch (florins p. kg.)	1.20	1.20	1.15	1.15	1.07	1.34	1.74	1.38	1.70	
Hamburg, auction (b): Schleswig-Holstein butter, with quality mark (R. M. per 50 kg.)	107.15	106.96	107.50	106.93	108.60	126.49	149.85	131.22	146.67	
Kempten (b): Allgäu butter (Pfennige p. half kg.)	2) 98	2) 98	2) 98	2) 98	2) 103	113	135	110	128	
London (c) (shillings p. cwt.):										
British blended	130.8	130.8	130.8	130.8	130.8	140/-	154/-	140.4	158.8	
Danish	109/-	107/-	106/-	106/-	107.6	121/10	150/-	133.4	153.6	
Irish creamery, salted	108/-	106/-	105/-	105/-	104.6	119/2	142/-	119.3	134.10	
Dutch	112/-	112/-	112/-	112/-	112/3	119/7	143/6	132.1	151.11	
Argentine	100/-	99/-	98/-	98/-	100/-	116/7	137/6	117.7	135.10	
Siberian	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	134/9	3) 97.4	131.6	
Australian, salted	105/-	103/-	102/-	102/-	102/9	113/2	142/-	116.8	135.9	
New Zealand, salted	106/-	104/-	103/-	103/-	104/3	118/10	142/-	119.11	137.8	
CHEESE.										
Milan (lire per quintal):										
Parmigiano-Reggiano, 1st quality of last year's production	910	910	910	910	902	1,185	1,287	1,103	1,160	
Green Gorgonzola, mature, choice	465	465	450	440	430	575	561	616	671	
Rome: Roman pecorino, choice (lire p. quintal)	1,187	1,187	1,187	1,225	1,225	1,175	1,187	1,121	1,207	
Alkmaar: Edam 40 x 40 % butterfat, with the country's cheesemark, factory cheese, small; florins, p. 50 kg.	21.00	21.00	22.50	24.50	23.69	37.70	41.10	32.63	40.83	
Gouda: Gouda 45 x (whole milk cheese, with the country's cheesemark, home made; florins, p. 50 kg.)	26.50	27.00	27.50	28.00	24.62	41.40	46.00	37.93	45.56	
Kempten (b): (Pfennige per half kg.):										
Soft cheese, green (20 % butterfat)	24 1/2	23 1/2	22 1/2	22 1/2	21 1/4	24 7/8	20	24	27	
Emmenthal from the Allgäu (whole milk cheese) 1st quality	83	83	83	83	83	100 1/2 4)	98	97 1/2 4)	97	
London (c) (shillings per cwt.):										
English Cheddar	5) 94/-	5) 94/-	124/-	124/-	124/-	102/-	90/-	99/10	103/4	
Canadian	5) 63/-	5) 62/-	5) 59/-	80/6	80/9	78/8	86/1	75/9	93/11	
New Zealand	62/-	62/-	60/-	59/-	59/3	62/11	82/9	63/2	82/2	
Liverpool (c): Engl. Cheshire, ungraded (sh. p. cwt.)	79/4	79/4	79/4	74/8	72/4	76/1	80/6	94/3	96/5	

a) Thursday prices. — b) Wednesday prices. — c) Average prices for weeks ending on preceding Wednesday.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) Quoting system changed: actual prices are generally 3 Pf. higher than according to the former system used in Kempten. — 3) Average calculated from the prices for the Fridays and the Thursdays preceding. — 4) Average price for all qualities. — 5) New.

QUARTERLY REVIEW OF PRICES ¹⁾

GROUPS	COUNTRIES AND PRODUCTS	AVERAGE						Agricultural year ²⁾	
		June	May	April	Jan.- March	April- June	April- June	1930-31	1929-30
		1932	1932	1932	1932	1931	1930		

GERMANY (Prices in Reichsmarks per quintal)

A I	Wheat (Berlin)	25.87	27.35	26.20	24.08	28.17	28.69	26.39	25.00
	Rye (Berlin)	19.00	20.17	19.92	19.62	19.78	16.98	17.15	17.27
	Barley, feeding (Berlin)	17.04	18.17	18.11	16.30	22.21	17.85	19.64	17.43
	Oats (Berlin)	16.07	16.52	16.42	14.85	18.27	15.78	16.28	15.77
	Potatoes (Berlin)	3.68	2.96	3.66	3.81	4.61	3.14	3.29	4.26
A II	Milk, fresh (Berlin)	13.75	15.43	15.81	14.11	17.23	13.59	17.62	16.89
	Butter (Hamburg)	217.20	233.62	233.42	214.25	251.22	264.09	282.10	330.68
	Cheese, Emmental variety (Kempten) ³⁾	166.00	166.00	166.00	167.17	197.65	199.35	192.00	205.00
	Beef, live weight (Berlin)	74.35	70.20	69.00	70.70	93.78	115.75	106.32	114.84
	Veal, live weight (Berlin)	63.40	73.00	80.80	70.60	110.23	133.42	126.23	143.02
	Pork, live weight (Berlin)	70.60	64.40	70.40	76.33	89.67	128.48	110.44	154.09
B I	Basic slag (Aachen) ⁴⁾	0.212	0.225	0.225	0.233	0.30	0.30	0.31
	Superphosphate of lime 18 % . . . . .	...	5.96	5.96	5.96	6.51	6.71	6.51	6.51
	Potash salts 38-42 % ⁴⁾ ⁵⁾	0.160	0.165	0.170	0.182	0.186	0.186	0.187
	Sulphate of Ammonia ⁴⁾	0.76	0.76	0.76	0.75	0.856	0.90	0.83	0.86
	Nitrate of lime ⁴⁾	0.99	0.99	0.99	0.98	1.07	1.07	1.03	1.05
B II	Wheat bran (Hamburg)	10.14	11.06	11.28	9.00	13.41	7.98	9.97	9.33
	Linseed cake (Hamburg)	10.17	10.47	11.04	11.85	13.65	17.34	15.39	21.08
	Coconut cake (Hamburg)	10.07	10.46	12.27	11.25	13.18	15.11	13.32	16.94
	Groundnut cake (Hamburg)	10.62	10.94	12.44	12.73	12.25	13.04	12.50	17.55
	Crushed soya extraction residue (Hamburg)	10.07	10.39	12.00	11.13	12.73	13.68	13.44	16.59

DENMARK (Prices in Danish crowns per quintal)

A I	Wheat (Copenhagen)	14.20	13.56	12.75	11.62	11.41	15.78	12.41	16.08
	Barley (Copenhagen)	13.80	14.70	14.75	14.18	11.50	12.43	11.18	14.13
	Oats (Copenhagen)	13.00	13.08	13.33	13.25	13.30	11.71	11.86	18.69
A II	Butter (Copenhagen)	145.00	159.00	167.00	202.50	195.35	223.00	225.00	280.00
	Eggs	70.80	63.00	56.50	88.97	74.00	98.35	121.00	149.00
	Pork, live weight	72.00	72.00	68.00	64.40	89.00	146.35	98.00	155.00
B I	Superphosphate 18 %	5.95	5.95	5.95	5.90	5.95	6.40	5.85	6.22
	Potash salts 40 %	13.75	13.75	13.75	13.67	12.95	13.30	12.62	13.05
	Sulphate of ammonia	12.35	12.35	12.35	12.25	17.65	19.10	17.43	18.55
	Nitrate of lime, Norwegian	13.45	13.45	13.45	13.40	16.85	16.95	16.35	16.47
B II	Rye, imported (Jutland)	10.43	11.95	11.90	11.44	8.56	11.85	8.60	13.76
	Maize, Plate (Copenhagen)	6) 9.10	6) 9.45	6) 9.75	6) 9.25	n. 7.75	7) 12.10	8.30	13.47
	Wheat bran (Copenhagen)	9.52	10.45	11.15	9.87	9.87	9.99	9.12	11.49
	Cottonseed cake (Copenhagen)	11.56	11.75	11.82	12.73	13.12	17.19	14.37	18.96
	Sunflower-seed cake (Copenhagen)	10.44	10.40	10.55	11.45	11.45	12.19	12.55	15.95
	Groundnut cake (Copenhagen)	13.36	13.77	14.57	15.76	12.27	13.18	12.58	17.27
	Crushed soya extraction residue (Copenhagen)	13.06	13.45	14.20	13.70	12.71	13.39	13.08	16.00

¹⁾ Each quarter a list is published for several countries containing prices of plant (A I) and animal (A II) products sold by the farmer, as well as of fertilisers (B I), and of concentrated feeding stuffs for livestock (B II) bought by the farmer.

In the case where the market is not indicated, the price is the average one for the country. — The prices paid to farmers for sugar-beet are generally fixed once a year and therefore are not inserted in these tables.

²⁾ July to June. — ³⁾ From January 1931 prices of the first quality before that date average prices of all qualities. — ⁴⁾ Prices per unit contained in one quintal. — ⁵⁾ New series. — ⁶⁾ Price in Jutland. — ⁷⁾ Danube.

GROUPS	COUNTRIES AND PRODUCTS	AVERAGE						Agricultural year	
		June	May	April	Jan. March	April-June	April-June	1930-31	1929-30
		1932	1932	1932	1932	1931	1930		

FRANCE (Prices in francs per quintal)

A I	Wheat (Paris)	172.25	175.25	170.10	170.75	186.55	131.20	173.90	139.70
	Rye (Paris)	100.00	110.00	112.00	100.00	88.00	69.65	84.60	73.40
	Maltling barley (Paris)	90.00	96.00	101.00	98.35	91.65	73.15	92.35 n	93.00
	Oats (Paris)	112.45	114.35	117.00	106.10	89.60	68.25	79.80	90.20
	Wine, red (southern markets) (hectol.)	82.00	79.00	81.00 n	86.00	153.00	71.00	154.00	89.00
A II	Beef, dead weight (Paris)	737.00	759.00	714.00	693.00	961.00	1,131.00	1,050.00	916.00
	Pork, live weight (Paris) . . . . .	...	657.00	587.00	543.00	579.00	798.00	665.00	851.00
	Mutton, dead weight (Paris)	1,094.00	1,137.00	1,117.00	1,008.00	1,497.00	1,424.00	1,504.00	1,452.00
B I	Basic slag, 18 % (Lorraine)	23.40	23.40	23.40	23.40	23.40	25.50	24.30	25.95
	Superphosphate 14 % (North and East)	27.00	27.50	27.00	26.67	30.40	31.70	31.15	31.60
	Sylvite, minimum 12 %	10.60	10.60	10.60	10.60	10.60	10.70	10.60	10.90
	Nitrate of soda (Dunkirk)	100.00	100.00	99.50	98.15	112.65	119.50	109.40	115.70
	Sulphate of ammonia 20.4 %	99.00	99.00	101.00	100.15 n	115.50	120.25	112.20	118.85
B II	Linseed cake (North)	70.50	72.00	74.00	77.10	86.00	103.50	103.00	130.50
	Coconut cake (Marseilles)	67.00	67.00	67.00	68.50	78.35	80.00	73.00	102.00
	Groundnut cake (Marseilles)	70.00	75.00	75.00	79.15	77.65	88.00	85.00	116.75

GREAT BRITAIN (A: Prices in shillings and pence per cwt;

B: Prices in pounds sterling, etc. per long ton)

A I	Wheat	6/3	6/2	6/1	6/2	5/11	8/8	6/6	9/8
	Barley	6/10	7/-	6/10	6/8	5/9	6/10	5/10	7/8
	Oats	8/4	8/-	8/-	7/8	6/10	6/7	6/4	7/6
	Potatoes (London)	11/8	11/10	12/3	11/4	8/9 n	3/1	7/-	4/-
A II	Butter (London)	130/8	130/8	134/5	132/7	141/10	158/8	144/9	177/4
	Cheese, Cheddar (London)	124/-	120/6	120/5	115/2	105/4	110/7	98/4	109/1
	Beef, dead weight (London)	84/-	79/4	79/4	74/8	79/9	86/4	79/2	82/10
	Mutton, dead weight (London)	79/4	77/-	78/2	78/2	110/1	116/8	107/10	109/8
	Pork, dead weight (London)	58/4	71/2	77/-	75/1	87/-	113/2	102/10	120/2
B I	Basic slag 14 % (London)	2-2-3	2-1-0	2-1-0	2-1-0	2-2-6	2-3-0	2-2-3	2-3-1
	Superphosphate, 16 % (London)	2-17-0	2-17-0	2-17-0	2-17-0	3-1-0	3-6-0	3-3-6	3-6-0
	Kainit 14 % (London)	3-6-0	3-6-0	3-6-0	3-6-4	3-3-0	3-3-0	3-1-6	3-1-2
	Nitrate of soda, 15 1/2 % (London)	9-0-0	9-0-0	9-0-0	8-16-8	10-0-0	10-2-0	9-16-8	10-0-2
	Sulphate of ammonia 20.6 % (London)	5-19-0	7-0-0	7-0-0	7-0-0	9-10-0	10-2-0	9-7-2	9-18-6
B II	Bran, British (London)	5-8-5	6-9-9	6-9-9	6-7-9	4-18-5	4-6-1	4-16-4	5-13-10
	Bran, middlings, imported (London)	6-1-5	6-7-0	6-5-6	5-15-7	4-10-7	4-12-2	4-11-5	5-12-1
	Linseed cake, English (London)	8-5-0	8-5-0	8-10-3	8-14-5	8-12-0	11-7-9	9-12-6	12-19-5
	Cottonseed cake (London)	4-17-0	4-17-0	4-19-3	5-8-2	5-3-9	5-6-4	4-17-8	6-11-7
	Palm kernel cake (Liverpool)	6-10-0	6-10-0	6-10-6	6-15-6	6-1-0	6-6-9	5-9-2	8-8-4

ITALY (Prices in lire per quintal)

A I	Wheat, soft (Milan)	112.75	120.75	118.60	114.80	106.40	138.30	111.90	131.45
	Wheat, hard (Palermo)	130.00	140.00	141.00	136.35	141.00	143.00	135.00	141.00
	Oats (Milan)	n, 73.50	n, 77.00	n, 77.00	n, 76.50	72.15	74.40	74.30	82.20
	Rice (Milan)	73.50	77.50	77.90	67.10	52.50	68.40	56.30	77.85
	Maize (Milan)	155.00	158.50	153.30	147.00	120.80	163.70	125.55	181.20
	Hemp, fibre . . . . .	...	235.00	217.00 n	213.00	212.35 n	375.00	248.00	461.00
	Olive oil (Bari)	525.00	525.00	525.00	508.35	613.30	486.65	580.25	551.40
	Wine, ordinary, 11° to 13° (Bari) (hectol.)	80.00	80.00	80.00	80.00	108.00	131.00	118.00	136.00

1) March: 88.00. — 2) March: 213.00.

GROUPS	COUNTRIES AND PRODUCTS	AVERAGE						Agricultural year	
		June	May	April	Jan.-March	April-June	April-June	1930-31	1929-30
		1932	1932	1932	1932	1931	1930		

ITALY (continued)

A II	Cheese (Parmigiano-Reggiano) (Milan)	902.00	900.00	1,015.00	979.00	1,121.00	1,177.00	1,139.00	1,128.00
	Eggs, fresh (Milan) (per 100)	28.75	27.00	25.90	35.85	33.35	37.25	47.00	52.15
	Beef, live weight (Milan)	285.00	310.00	312.00	324.00	354.00	460.00	404.00	480.00
	Pork, live weight (Milan)	367.00	352.00	366.00	361.00	371.00	566.00	444.00	637.60
B I	Basic slag 16-20 % (Chiasso) 1)	1.075	1.075	1.075	1.050	1.15	1.38	1.29	1.43
	Superphosphate, mineral, 15-17 % (Genoa) 1)	1.195	1.195	1.195	1.195	1.17	1.30	1.24	1.30
	Chloride of potassium (Genoa)	69.50	69.50	69.50	71.15	78.00	84.00	80.25	83.50
	Sulphate of ammonia (Genoa)	78.50	78.50	78.75	77.15	73.85	91.45	81.75	91.25
	Copper sulphate (Genoa)	119.00	120.00	122.50	129.00	168.00	223.00	182.00	223.00
B II	Wheat bran (Genoa)	41.75	50.35	51.80	48.60	39.35	46.65	45.00	58.00
	Rice bran (Milan)	42.50	44.00	45.00	45.00	37.00	47.20	36.00	56.85
	Linseed cake (Milan)	52.00	57.50	63.00	66.30	57.35	79.65	65.00	99.00
	Groundnut cake (Milan)	52.50	53.50	54.50	57.40	50.35	68.35	55.00	82.00
	Rapeseed cake (Milan)	26.50	29.25	35.30	37.30	35.65	53.65	37.00	66.00

NETHERLANDS (Prices in guilders per quintal)

A I	Wheat (Groningen)	n. 12.50	n. 12.50	n. 12.50	n. 12.50	6.34	9.26	6.94	9.69
	Rye (Groningen)	5.92	6.00	5.77	5.00	4.43	5.08	4.49	6.72
	Barley (Groningen)	6.45	6.42	6.48	5.76	5.32	6.72	5.00	7.93
	Oats (Groningen)	5.75	5.75	6.35	5.98	5.52	5.15	5.30	6.16
	Peas (Rotterdam) . . . . .	...	...	...	12.06	—	9.48	9.40	12.02
	Flax, fibre (Rotterdam) . . . . .	...	...	...	54.33	56.50	84.35	61.00	100.00
	Potatoes (Amsterdam)	n. 3.30	5.40	5.90	6.37	n. 8.70	3.46	7.20	3.75
A II	Butter (Maastricht)	107.00	93.00	100.00	118.00	136.00	154.35	157.00	194.00
	Cheese, Gouda 45 % (Gouda)	49.24	37.50	42.60	57.66	71.47	83.01	83.09	100.84
	Cheese, Edam 40 % (Alkmaar)	47.38	40.50	42.80	55.33	66.71	78.41	74.44	90.99
	Eggs (Roermond) (per 100) . . . . .	...	...	...	3.94	4.18	5.18	5.25	7.22
	Beef, dead weight (Rotterdam) . . . . .	...	...	...	73.33	96.50	107.35	100.00	105.00
	Pork, live weight (Rotterdam) . . . . .	...	...	...	30.33	39.00	68.00	49.00	79.00
B I	Basic slag (1)	0.005	0.099	0.099	0.103	0.124	0.144	0.144	0.16
	Superphosphate 17 %	1.99	2.00	2.02	1.93	2.50	2.87	2.68	3.15
	Kainit (1) . . . . .	...	...	...	0.149	0.144	0.145	0.150	0.15
	Nitrate of soda	7.36	7.71	7.89	7.83	10.70	10.92	10.48	10.59
	Sulphate of ammonia 20 1/2 %	4.12	4.05	4.19	4.40	9.83	9.55	9.62	10.06
B II	Maize (Rotterdam) . . . . .	...	...	...	3.89	4.91	7.93	5.43	8.54
	Linseed cake, Dutch	6.00	5.95	6.20	6.82	7.80	10.17	9.05	12.24
	Coconut cake	6.05	6.30	6.65	6.20	7.98	8.72	7.88	10.05
	Groundnut cake	6.30	6.75	7.70	7.43	7.32	8.02	7.43	10.95

POLAND (Prices in zlotys per quintal)

A I	Wheat (Warsaw)	30.24	32.19	30.10	26.80	33.53	41.40	31.17	40.89
	Rye (Warsaw)	28.82	29.84	27.78	25.30	27.79	19.02	21.33	22.72
	Barley (Warsaw)	n. a.	25.35	23.92	23.90	n. 27.29	24.70	25.55	21.88
	Oats (Warsaw)	24.93	25.59	25.81	23.25	29.43	18.33	24.01	21.95
A II	Butter (Warsaw)	263.00	429.00	351.00	406.00	424.00	490.00	486.00	590.00
	Beef, live weight (Warsaw)	93.00	91.00	76.00	66.17	85.00	119.00	103.00	131.00
	Pork, live weight (Warsaw)	125.00	138.00	124.00	91.58	124.00	225.00	152.00	238.00
	Eggs (Warsaw) (per 100)	8.00	7.73	7.55	11.91	9.14	11.78	14.25	16.30
B I	Superphosphate (2)	0.62	0.44	0.43	0.49	0.82	0.88	0.83	0.89
	Potash salts 25 %	13.75	13.75	13.75	13.75	13.75	13.75	13.75	13.75
	Sulphate of ammonia	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
B II	Wheat bran (Warsaw)	14.19	17.69	17.50	15.53	21.11	14.67	16.52	16.64
	Rye bran (Warsaw)	14.25	18.45	17.45	14.10	21.06	10.00	14.15	13.34
	Linseed cake (Warsaw)	22.50	22.50	24.17	24.15	31.50	n. 34.50	31.40	39.86
	Rapeseed cake (Warsaw)	17.75	17.50	17.55	19.05	25.28	n. 26.00	21.90	29.85

1) Prices per unit contained in one quintal. — 2) Net price per kg.

GROUPS	COUNTRIES AND PRODUCTS	AVERAGE						Agricultural year	
		June	May	April	Jan.-March	April-June	April-June	1930-31	1929-30
		1932	1932	1932	1932	1931	1930		

SWEDEN (Prices in Swedish crowns per quintal)

A I	Wheat	18.50	18.45	17.84	17.36	20.22	17.70	19.39	18.31
	Rye	16.50	16.33	16.13	15.99	17.22	15.46	16.29	14.92
	Barley	12.50	12.88	12.43	12.11	13.66	12.26	12.25	13.40
A II	Oats	10.56	11.03	10.48	10.36	12.18	9.48	10.18	10.88
	Beef, live weight (Göteborg)	34.00	34.00	34.00	35.00	46.67	56.35	52.00	56.00
	Pork, live weight (Göteborg)	66.25	52.50	47.75	44.57	53.33	100.35	65.00	108.00
	Butter (Malmö)	149.25	161.00	177.25	188.85	184.00	210.65	210.00	262.00
	Eggs (Stockholm)	61.00	59.20	57.50	85.85	71.00	130.00	144.00	151.00
B I	Superphosphate 20 %	7.85	7.85	7.85	7.65	7.78	7.80	7.48	7.85
	Potash salts, 20 %	7.75	7.75	7.75	7.75	7.95	8.10	7.92	8.25
	Chilisalt peter	18.35	18.35	18.35	18.35	19.04	19.04	18.59	19.38
B II	Calcium cyanamide	15.50	15.50	15.50	15.50	18.10	18.10	18.10	18.40
	Maize, La Plata	9.83	10.55	10.44	9.42	8.86	12.62	10.07	14.73
	Wheat bran	10.53	11.89	11.36	10.22	10.36	9.97	9.55	11.12
	Groundnut cake	15.35	15.39	15.68	15.90	13.41	14.66	13.52	18.42
	Cottonseed cake	11.85	12.49	12.45	12.73	12.59	14.54	12.80	16.98
	Soya meal	15.32	15.57	15.49	14.45	14.13	14.78	14.08	17.37

CZECHOSLOVAKIA (Prices in Czech. crowns per quintal)

A I	Wheat	147.50	152.50	152.50	148.17	157.00	168.35	149.00	172.00
	Rye	133.50	143.50	143.50	144.50	143.00	104.35	108.00	121.00
	Barley	94.50	97.50	103.00	110.80	148.35	132.65	134.00	138.00
A II	Oats	96.50	107.00	108.00	110.35	150.65	101.65	118.00	117.00
	Edible potatoes	18.50	25.00	29.50	28.15	44.35	23.35	42.00	37.00
	Hops	475.00	475.00	555.00	531.65	642.00	1,565.00	934.00	1,496.00
	Butter	2,475.00	2,300.00	2,250.00	2,025.00	2,217.00	2,133.00	2,179.00	2,150.00
	Fresh eggs (per 100)	39.16	39.16	49.16	60.37	56.40	60.50	74.10	78.10
	Beef, dead weight	775.00	775.00	775.00	775.00	925.00	992.00	981.00	1,156.00
	Veal, dead weight	775.00	775.00	675.00	741.67	921.00	1,100.00	981.00	1,219.00
	Pork, dead weight	937.00	875.00	915.00	874.17	858.00	1,375.00	1,014.00	1,445.00
B I	Basic slag, 15 %	34.87	34.25	33.38	33.53	37.05	40.23	39.20	40.95
	Superphosphate, 16 to 18 %	51.85	51.85	51.85	51.85	51.85	56.67	52.85	58.40
	Kainit, 14 %	22.90	22.90	22.90	21.53	23.70	23.12	23.10	23.60
B II	Chile saltpeter	150.50	150.50	147.00	146.00	169.80	174.50	165.15	169.45
	Sulphate of ammonia, 20 1/2 %	129.75	129.75	127.75	127.75	140.00	148.50	139.65	149.05
	Maize, imported	60.75	62.25	67.25	62.25	73.00	104.65	80.00	120.00
	Wheat bran (Prague)	75.50	77.25	79.50	77.00	89.00	77.00	79.00	86.00
	Rye bran (Prague)	78.50	79.50	80.50	78.00	90.00	68.35	75.00	83.00
	Crushed soya (Prague)	107.50	108.75	110.80	112.35	127.65	139.65	133.00	164.00
	Rapeseed cake (Prague)	102.50	101.35	101.00	100.00	101.00	123.00	99.00	147.00
	Linseed cake (Prague)	119.00	119.00	119.00	121.35	133.00	152.65	137.00	182.00
	Groundnut cake (Prague)	114.50	115.60	117.25	122.60	122.65	147.00	125.00	174.00

1) Rectified prices: March: 7.85; February: 7.55; January: 7.55.

THE TREND OF PRICES OF AGRICULTURAL PRODUCTS DURING THE SECOND QUARTER OF 1932

In the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries. The indices collected together have been obtained according to different methods and criteria. A detailed account of the items included in each series and the system of construction of the index-numbers may be found in the volume published especially for this purpose by the Institute, entitled "Index-numbers of prices of agricultural products and other price-indices of interest to the farmer". We refer the reader to this volume for an exact interpretation of the significance of the different series of data.

Owing to the substantial divergence which often exists in the value and significance of the data available, much care is advisable in their utilisation from an international point of view. For this reason it has been considered opportune to reproduce all the data in their original form only, without attempting formally to unite them. The latter process, by a comparison of often heterogeneous data, might easily lead to the drawing of erroneous relations and conclusions.

It is only as a supplement to the figures published in the tables and with all the qualifications that have just been indicated that a table is given below, corresponding to those published at the end of each of the preceding quarters and containing the quarterly indices.

General index-numbers of prices of agricultural products.

(Base: first quarter of 1929 = 100).

COUNTRIES	1930			1931				1932	
	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
Germany	83.2	86.4	83.1	79.9	81.4	77.5	73.0	70.9	70.2
England and Wales .	93.1	95.1	88.9	87.5	85.4	83.8	79.2	81.2	79.2
Estonia	72.0	72.5	67.7	63.7	63.9	62.8	56.7	52.8	49.3
Finland	77.6	76.6	69.2	69.2	66.7	64.5	67.3	72.6	67.3
Hungary	61.9	61.9	59.7	60.4	62.4	64.2	66.4	57.2	67.2
Italy	77.3	75.4	69.5	63.7	65.1	61.4	62.4	64.5	65.4
Netherlands	84.6	86.4	68.9	77.1	78.2	70.7	61.1	67.9	54.6
Poland	76.3	75.0	70.9	64.0	71.4	63.4	63.3	58.7	63.7
Argentina	87.6	82.5	67.5	60.6	59.6	59.7	63.4	58.1	56.6
Canada	92.6	78.3	68.6	61.9	60.2	55.6	55.8	53.2	50.8
Unit. States Bureau of Agric. Economics	91.9	80.9	75.0	67.6	63.7	55.4	50.2	44.9	41.2
Unit. States Bureau of Labor	87.3	79.5	74.5	67.3	63.7	59.3	54.4	48.3	44.5

* * *

Commencing with the current issue, certain modifications have been introduced in the table of index-numbers. The "Banca de la Nación Argentina" has completed a revision of the price index-numbers of meat for the years 1926-31, which has involved modification of the general price index-numbers of agricultural products for that period.

The Census and Statistics Office of New Zealand, with the intention of providing a closer analysis of the export price movements of farms produce has established a new series of index-numbers, still referring, however, to the same base 1909-13 = 100. As regards the new grouping it may be noted that the first three groups are unchanged while "Other pastoral produce" corresponds practically to "hides, skins and tallow" in the old series but with the addition of some new items. The group "all pastoral and dairy produce" is a combination of the first four. The group "agricultural produce" includes agricultural products in the narrower sense, while the last group includes both the agricultural and pastoral products of New Zealand.

To facilitate comparison with the periods no longer appearing in the tables there are given below the modified series for Argentina and New Zealand from January to December 1931.

Index-numbers of prices: corrections and new series.

YEAR AND MONTH	ARGENTINA			NEW ZEALAND					
	Meat	Total agricultural products	Dairy produce	Meat	Wool	Other pastoral produce	All pastoral and dairy produce	Agricultural produce	All pastoral, dairy and agricultural produce
Average 1930	109.2	85.9	120.6	171.2	100.3	124.3	127.9	126.7	127.8
" 1931	94.3	63.8	98.9	130.1	67.9	76.7	96.5	115.5	97.0
January 1931 . . .	94.9	63.3	98.6	150.1	64.0	87.0	101.1	119.2	101.6
February " . . .	96.8	63.9	102.4	140.2	57.0	74.3	97.3	121.5	98.0
March " . . .	94.7	63.7	105.1	126.5	61.1	69.3	95.8	118.0	96.4
April " . . .	93.1	61.5	89.2	128.1	76.4	69.6	93.7	117.8	94.4
May " . . .	94.3	63.2	92.1	124.6	76.7	78.9	94.9	115.8	95.5
June " . . .	94.0	62.9	87.8	126.3	77.0	73.5	93.2	114.6	93.8
July " . . .	92.9	63.7	94.7	127.9	66.9	77.0	94.0	116.5	94.6
August " . . .	98.7	62.6	103.5	126.3	63.4	76.5	96.3	102.6	96.4
September " . . .	102.2	61.6	101.5	127.5	61.8	67.5	94.6	101.1	94.8
October " . . .	97.9	68.9	106.0	130.9	60.6	66.4	96.9	103.2	97.0
November " . . .	91.3	69.2	102.5	118.5	66.3	69.1	94.1	105.4	94.4
December " . . .	80.4	61.4	97.6	138.3	61.5	72.9	96.0	118.9	96.6

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER *

COUNTRIES AND CLASSIFICATIONS	June	May	April	March	Feb.	Jan.	June	June	Year	
	1932	1932	1932	1932	1932	1932	1931	1930	1931	1930
GERMANY (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of vegetable origin	118.3	121.2	122.4	121.6	119.5	115.3	129.8	117.8	119.3	115.3
Livestock	65.4	63.2	64.2	65.6	65.7	65.7	81.5	109.1	83.0	112.4
Livestock products	87.3	90.0	90.3	97.6	95.5	92.1	103.3	109.8	108.4	121.7
Feeding stuffs	93.8	96.1	99.7	99.0	93.5	92.0	114.5	90.2	101.9	93.2
Total agricultural products	92.1	93.4	94.7	96.5	94.6	92.1	107.3	109.7	103.8	113.1
Fertilizers	71.5	70.7	71.7	72.2	72.0	71.3	77.9	84.3	76.5	82.4
Agricultural dead stock	116.0	116.4	117.0	117.2	118.9	122.6	130.0	140.0	130.7	139.4
Finished manufactures (« Gebrauchs- güter »)	117.3	118.8	119.9	121.5	123.6	126.9	141.1	160.9	140.1	159.3
General index-number	96.2	97.2	98.4	99.8	99.8	100.0	112.3	124.5	110.9	124.6
ENGLAND AND WALES (Ministry of Agriculture) Average of corresponding months 1911-13 = 100.										
Agricultural products	111	115	117	113	117	122	123	131	120	134
Feeding stuffs	94	97	99	102	97	95	82	92	83	96
Fertilizers	91	91	91	91	91	91	100	103	96	101
General index-number 1)	90.6	94.4	97.0	98.9	102.0	99.6	97.2	112.7	97.7	114.1
ARGENTINA 2) (Banco de la Nación Argentina) 1926 = 100.										
Cereals and linseed	59.8	59.9	61.3	63.1	59.1	55.8	54.5	89.2	55.8	82.3
Meat (3)	73.7	74.5	73.8	71.8	74.6	75.8	94.0	110.8	94.3	109.2
Hides and skins	40.4	40.6	47.8	61.6	61.8	62.7	64.1	73.3	64.5	71.6
Wool	39.6	41.1	46.1	48.7	49.4	49.1	54.8	72.3	61.2	67.4
Dairy products	57.3	58.1	58.7	58.8	58.9	58.8	74.6	76.9	74.5	82.4
Forest products	66.3	66.3	66.3	78.3	78.3	79.3	108.7	106.9	99.3	107.9
Total agricultural products 3)	58.3	58.6	60.4	63.1	60.8	58.7	62.9	90.7	63.8	85.9
CANADA 2) (Internal Trade Branch of the Dominion Bureau of Statistics) 1926 = 100.										
Field products (grain, etc.)	40.6	44.6	44.5	43.7	43.7	42.0	47.3	79.0	44.6	70.0
Animals and animal products	59.3	58.7	62.1	65.2	66.2	68.8	73.1	98.0	77.6	102.9
Total Canadian farm products	47.6	49.9	51.1	51.7	52.1	52.0	56.9	86.1	57.0	82.3
Fertilizers	72.0	70.5	71.4	72.0	72.0	71.0	86.9	91.5	83.0	88.2
Consumer's goods (other than foodstuffs, etc)	78.6	78.7	78.3	78.9	79.7	79.8	80.2	86.4	80.5	86.8
General index-number	66.6	67.7	68.4	69.1	69.2	69.4	72.2	87.7	72.6	86.6
ESTONIA (Central Bureau of Statistics) 1913 = 100.										
Commodities imported 4)	114	114	114	113	112	117	137	109	129	118
Commodities exported	53	56	62	68	64	60	79	103	76	103
Agricultural products imported and export- ed 4)	69	72	77	81	78	76	96	105	91	108

*) For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication "Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer" (Rome, 1930), as well as to pages 77 to 79 of the "Crop Report" of January 1932.

1) Calculated by the "Statist", reduced to base-year 1913 = 100. — 2) Average data for the year 1931 are provisional. — 3) See explanation: page 502. — 4) From January 1932 the price of rye is excluded from the calculations.

COUNTRIES AND CLASSIFICATIONS	June	May	April	March	Feb.	Jan.	June	June	Year	
	1932	1932	1932	1932	1932	1932	1931	1930	1931	1930
UNITED STATES										
(Bureau of Agricultural Economics)										
Average 1909-10 to 1913-14 = 100.										
Cereals	44	49	50	51	51	52	67	106	63	100
Fruits and vegetables	82	80	78	73	68	70	114	192	98	158
Meat animals	57	59	66	69	65	68	91	141	93	134
Dairy products	62	69	74	76	79	85	86	118	94	123
Poultry and poultry products	59	60	60	61	70	87	81	103	96	126
Cotton and cottonseed	37	42	46	50	47	45	65	115	63	102
Total agricultural products	52	56	59	61	60	63	80	123	80	117
Commodities purchased by farmers 1)	111	112	114	115	116	118	130	149	129	146
Agricultural wages 1)	—	—	—	94	—	98	2)123	2)160	116	152
UNITED STATES										
(Bureau of Labor)										
1926 = 100.										
Grains	37.7	42.6	44.5	43.5	46.1	46.7	56.0	78.7	53.0	58.3
Livestock and poultry	46.7	44.4	49.2	51.4	50.3	53.4	61.9	88.5	63.9	89.2
Other farm products	48.2	49.6	51.2	52.1	52.7	54.8	70.8	92.7	69.2	91.1
Total farm products	45.7	46.6	49.2	50.2	50.6	52.8	65.4	88.9	64.8	88.3
Agricultural implements	84.9	84.9	85.0	85.0	85.1	85.5	94.6	95.0	94.0	95.1
Fertilizer materials	68.0	69.4	70.1	68.6	69.8	69.9	79.8	85.3	76.8	85.6
Mixed fertilizers	69.0	69.0	71.1	73.2	73.7	75.5	82.4	94.1	82.0	93.6
Cattle feed	42.1	45.9	53.4	52.4	48.2	53.0	61.1	102.0	62.7	99.7
Non-agricultural commodities	67.8	68.1	68.9	69.3	69.6	70.3	71.4	86.3	73.0	85.9
General index-number	63.9	64.4	65.5	66.0	66.3	67.3	70.0	86.8	71.1	86.3
FINLAND										
(Central Bureau of Statistics)										
1926 = 100.										
Cereals	88	89	89	92	94	96	78	75	77	76
Potatoes	73	69	69	69	68	68	73	68	68	76
Fodder	70	72	70	70	71	73	65	67	63	62
Meat	63	63	61	67	63	57	66	92	64	88
Dairy products	68	72	74	78	84	90	70	77	76	84
Total agricultural products	71	72	73	77	78	78	70	82	72	82
General index-number	87	88	89	92	93	94	85	90	84	90
HUNGARY										
(Central Bureau of Statistics)										
1913 = 100.										
Agricultural and livestock products	90	90	90	92	90	89	82	82	—	—
General index-number	96	97	97	99	99	98	91	94	—	—
ITALY										
(Consiglio Provinciale dell'Economia										
Corporativa di Milano)										
1913 = 100.										
National agricultural products	345.69	359.91	361.18	351.62	349.57	350.71	348.32	415.29	343.11	413.31
General index-number	304.22	312.54	318.79	322.14	323.49	325.92	339.33	412.49	341.57	411.0
NEW ZEALAND 3)										
(Census and Statistics Office)										
Average 1909-13 = 100.										
Dairy produce	86.5	94.9	100.3	99.0	92.2	90.4	87.8	—	98.9	120.6
Meat	113.3	114.1	113.7	112.0	118.2	117.5	126.3	—	130.1	171.2
Wool	58.4	59.4	61.0	67.2	64.7	66.2	77.0	—	67.9	100.3
Other pastoral produce	50.9	59.0	69.6	70.7	67.9	70.9	73.5	—	76.7	124.3
All Pastoral and Dairy produce	82.7	87.3	90.7	91.5	89.3	89.0	93.2	—	96.5	127.9
Agricultural produce	105.5	111.2	113.5	112.8	113.0	113.0	114.6	—	115.5	126.7
All Pastoral, Dairy and agricultural produce	83.4	87.9	91.3	92.1	90.0	89.7	93.8	—	97.0	127.8

1) 1910-14 = 100. — 2) July. — 3) See explanation, page 502.

COUNTRIES AND CLASSIFICATIONS	June	May	April	March	Feb.	Jan.	June	June	Year	
	1932	1932	1932	1932	1932	1932	1931	1930	1931	1930
NORWAY 1)										
(Kgl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals	125	125	123	123	122	123	108	125	112	114
Potatoes	150	155	151	150	140	137	165	120	150	152
Pork	84	86	85	88	93	95	76	102	86	98
Other meat	108	116	113	119	120	113	153	211	138	198
Eggs	67	69	70	81	87	90	77	96	96	121
Dairy products	122	119	119	123	130	129	126	151	129	150
Concentrated feeding stuffs	104	106	104	106	108	109	105	126	103	117
Maize	87	89	87	87	83	86	87	112	82	103
Fertilizers	89	88	89	89	91	91	96	105	90	101
NETHERLANDS										
(Directie van den Landbouw)										
Average 1924-25 to 1928-29 = 100.										
Products of the soil	49	56	56	56	60	58	71	45	(2) 72	(2) 68
Animal products	53	47	49	51	54	53	71	86	(2) 77	(2) 95
Total agricultural products	52	49	51	52	55	54	71	76	(2) 76	(2) 88
Agricultural wages	83	83	95	95	95	95	95	100	(2) 99	(2) 100
General index-number 3)	52.8	53.5	54.1	55.5	56.2	56.8	67.7	79.8	65.7	79.2
POLAND 4)										
(Central Bureau Statistics)										
1917 = 100.										
Products of the soil	54.6	62.3	61.7	57.1	53.8	52.7	62.8	55.5	53.9	52.1
Products of agricultural industry	67.7	71.6	71.5	67.1	64.5	62.6	73.2	74.4	65.9	69.9
Total products of plant origin	60.3	67.2	66.8	62.3	59.3	57.8	68.1	63.7	60.0	60.5
Animals	46.9	52.5	49.7	39.6	37.8	37.5	60.7	78.2	55.8	82.4
Dairy products	45.9	57.9	51.4	53.7	68.5	56.9	57.5	76.3	68.0	81.5
Total products of animal origin	46.8	55.2	50.8	45.6	49.5	45.4	59.3	77.4	60.8	81.9
Total agricultural products	53.7	61.4	59.0	54.1	54.5	51.8	63.8	68.9	59.7	68.5
Fertilizers	112.9	95.1	94.1	94.1	94.1	108.4	118.5	126.2	120.2	127.8
Industrial products	68.0	69.4	70.0	71.6	73.0	74.4	80.8	95.2	79.4	94.0
General index-number	61.8	66.1	65.3	63.8	64.6	63.9	73.2	83.1	70.5	82.3
YUGOSLAVIA										
(National Bank)										
of the Kingdom of Yugoslavia)										
1926 = 100.										
Products of the soil	72.2	73.5	74.3	76.0	70.3	69.0	77.8	91.5	74.3	89.3
Animal products	95.0	53.5	53.6	55.0	57.6	60.5	71.7	93.7	72.2	96.3
Industrial products	63.4	65.0	66.2	68.3	68.8	69.2	71.7	80.5	71.4	81.8
General index-number	64.9	65.4	66.1	67.8	67.3	67.8	73.8	86.8	72.9	86.6

1) The agricultural years refer to the period April 1-March 31. — 2) Agricultural year July 1-June 30. — 3) Calculated by the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100. — 4) Average data for the year 1931 are provisional.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Lithuania, Poland, Sweden and Switzerland: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

CEREALS

In the majority of European countries the first part of July was characterized by dry hot weather; in the second part of the month conditions were variable with lower temperatures and frequent and plentiful rains. Especially in areas where crops were backward the weeks of fine weather were favourable and accelerated growth and ripening of wheat. The subsequent rains frequently caused laying and at times hindered harvesting. Rust, which had previously made its appearance in several parts of the Danubian lands — often causing very serious losses — as well as in Italy, appeared in additional countries in July, notably in certain parts of Poland and of Czechoslovakia.

On the whole, however, weather in July was not unfavourable and the general situation at the beginning of August permitted expectations of a larger European cereal crop than that forecast on the basis of crop conditions at the beginning of July.

As regards wheat the estimates of production so far available indicate a crop larger than in 1931 in all countries except those of the Danube basin. In Rumania, Hungary, Yugoslavia and Bulgaria the crop was compromised by the bad weather in the latter part of June and by rust and is distinctly deficitary; a total reduction of 117 million bushels with respect to 1931 and of 67 million with respect to the average of the five years up to 1930 is indicated. The favourable results indicated for the other countries for which data of production are available largely compensate for this deficit so that the total data at present available indicate only a slight decrease on the production of the last year and a fairly considerable increase — of 67 million bushels — over the 1926-30 average. Amongst the countries for which crop estimates are still lacking, France will have a crop appreciably larger than in 1931 and an increase is also expected in other countries. In all, the European wheat crop probably surpasses that of 1931 by about 40 million bushels and that of the five years ending 1930 by about 130 million bushels. From the point of view of quality the product of several areas affected by rust and laying is very mediocre.

Cereal production.

COUNTRIES	BRITISH MEASURES				AMERICAN MEASURES			
	Thousand cwtals				Thousand bushels			
	1932	1931	Average 1926 to 1930	Average 1926 to 1930	1932	1931	Average 1926 to 1930	Average 1932
								% = 100
								% = 100
								Average

Germany	113,210	93,329	74,380	188,679	155,545	123,964	121.3	152.2
Austria (a)	7,546	6,569	6,671	12,243	10,615	11,117	115.3	110.1
Belgium	8,553	8,291	8,731	13,937	13,817	100.9	100.9	95.8
Denmark	32,335	36,718	26,200	53,891	61,195	43,666	88.1	123.4
Spain	96,871	80,657	85,802	161,448	134,426	143,001	120.1	112.9
Finland	818	696	554	1,363	1,161	923	117.4	147.6
England and Wales	24,864	21,532	28,378	41,440	35,887	47,296	115.5	87.6
Greece	11,023	7,323	7,152	18,372	12,205	11,920	150.5	154.1
Hungary	34,917	43,531	49,246	58,194	72,550	82,075	103.0	70.9
Italy	131,785	147,359	133,831	252,970	245,593	223,048	103.0	113.4
Lithuania (a)	4,872	4,114	3,135	8,120	6,857	5,222	118.4	155.0
Luxembourg	278	244	331	463	407	551	113.9	84.5
Netherlands	7,970	4,051	3,669	13,283	6,751	6,100	104.3	101.0
Portugal	10,833	7,799	6,262	18,138	12,999	10,437	108.6	101.0
Rumania	44,093	81,181	65,443	73,486	135,299	110,736	139.5	173.8
Switzerland (a)	3,889	3,294	3,372	5,457	5,489	5,619	102.5	100.5
Yugoslavia	38,887	59,274	48,794	64,810	98,789	81,322	65.6	79.7
TOTALS	592,085	505,928	553,119	986,785	1,009,862	921,846	97.7	107.0
Canada	244,749	182,486	261,452	407,915	304,144	455,744	134.1	93.6
United States (a)	265,200	473,677	352,524	442,000	789,462	567,541	56.0	75.2
Mexico	5,438	9,736	6,724	9,004	16,726	11,207	55.9	80.9
TOTALS	683,387	728,744	783,619	1,139,969	1,214,574	1,306,024	93.9	87.3
Korea	4,933	5,370	5,422	8,504	8,951	9,037	92.8	91.9
India	202,182	208,432	199,203	336,971	347,387	332,005	97.0	101.5
Japan	19,520	18,536	17,819	32,553	30,892	29,699	105.3	109.5
TOTALS	226,685	232,338	222,444	377,808	387,230	370,741	97.6	101.9
Algeria	19,291	15,390	17,755	32,150	52,649	29,592	125.3	108.6
French Morocco	13,179	17,981	16,553	21,965	29,967	27,588	73.3	79.6
Tunis	9,259	8,378	6,905	15,452	13,962	11,508	110.5	134.1
TOTALS	41,729	41,749	41,213	69,578	69,580	68,688	100.0	101.3
GRAND TOTALS	1,544,486	1,608,759	1,600,395	2,574,140	2,681,246	2,667,299	96.0	96.5

RYE

Germany	179,258	147,269	165,770	320,105	262,982	296,018	121.7	108.1
Austria (a)	12,833	10,201	10,702	22,916	18,216	19,110	125.8	119.9
Belgium	11,244	11,470	11,862	20,078	20,483	21,182	98.0	94.8
Bulgaria	6,402	6,760	4,716	11,432	12,022	8,422	94.7	135.7
Spain	13,370	11,817	12,420	23,835	21,103	22,129	113.1	107.6
Finland	2,168	6,604	6,653	12,801	11,792	11,898	108.5	107.6
Greece	882	1,017	898	1,555	1,816	1,603	86.7	98.2
Hungary	17,201	12,136	16,374	30,715	21,672	29,240	141.7	105.0
Italy	3,338	3,375	3,584	5,961	6,027	6,401	98.9	93.1
Lithuania	12,787	9,118	11,307	22,834	16,282	20,192	140.2	113.1
Luxembourg	231	188	219	413	336	391	105.7	103.7
Netherlands	7,338	7,933	8,698	13,460	14,167	15,532	95.0	86.7
Rumania	7,275	7,819	7,123	12,962	13,962	12,721	93.0	102.1
Switzerland	833	785	894	1,488	1,402	1,597	106.2	93.2
Yugoslavia	4,527	4,264	4,144	8,084	7,614	7,399	109.2	109.2
TOTALS	284,887	240,756	265,374	508,730	429,926	473,885	118.3	107.4
Canada	6,926	2,980	8,685	12,368	5,322	15,509	232.4	79.7
United States	23,800	18,208	22,692	42,500	32,514	40,522	130.7	104.9
TOTALS	30,726	21,188	31,377	54,868	37,836	56,031	145.0	97.9
Algeria	44	20	28	79	37	49	215.3	159.5
GRAND TOTALS	315,657	261,964	296,779	563,677	467,799	529,965	120.5	106.4

Cereal production.

COUNTRIES	BRITISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1931 = 100	Average = 100
	Thousand centals			Thousand bushels			%	%
BARLEY								
Germany	72,067	66,540	64,324	150,143	138,627	134,011	108.3	112.0
Austria	6,396	4,775	5,531	13,324	9,948	11,523	133.9	115.0
Belgium	2,068	1,705	1,862	4,308	3,552	3,879	121.3	111.1
Bulgaria	7,022	7,949	6,607	14,629	16,560	13,765	88.3	106.3
Spain	55,577	43,548	45,265	115,788	90,727	94,304	127.6	122.8
Finland	3,400	3,086	3,220	7,083	6,430	6,708	110.1	105.6
England and Wales	16,710	17,294	20,300	34,813	36,029	42,293	96.6	82.3
Greece	5,291	4,391	3,333	11,023	9,147	6,945	120.5	158.7
Hungary	14,174	10,496	13,327	29,529	21,867	27,765	135.0	106.4
Italy	5,440	5,278	5,257	11,334	10,995	10,953	103.1	103.5
Luxemburg	132	128	115	276	266	240	103.6	115.0
Malta 3)	129	137	141	269	285	294	94.4	91.8
Netherlands	1,321	1,572	1,960	2,751	3,274	4,084	84.0	67.4
Rumania	39,463	31,182	42,194	82,216	64,964	87,906	126.6	93.5
Switzerland	287	271	263	597	565	549	105.7	108.9
Yugoslavia	8,527	8,640	8,383	17,765	18,000	17,464	98.7	101.7
Totals	238,004	206,992	222,082	495,848	431,236	462,683	115.0	107.2
Canada 2)	39,232	32,344	54,795	81,733	67,383	114,158	121.3	71.6
United States	145,440	95,129	126,785	303,000	198,185	264,139	152.9	114.7
Totals	184,672	127,473	181,580	384,733	265,568	378,297	144.9	101.7
Korea	21,160	19,621	17,617	44,083	40,877	36,702	107.8	120.1
Japan	33,653	36,730	38,870	70,113	76,522	80,980	91.6	86.6
Totals	54,813	56,351	56,487	114,196	117,399	117,682	97.3	97.0
Algeria	14,396	12,993	16,886	29,993	27,069	35,181	110.8	85.3
French Morocco	17,882	28,335	21,933	37,254	59,032	45,695	63.1	81.5
Tunis	7,496	3,968	4,063	15,616	8,268	8,465	188.9	184.5
Totals	39,774	45,296	42,882	82,863	94,369	89,341	87.8	92.8
GRAND TOTALS	517,263	436,112	503,031	1,077,640	908,572	1,048,003	118.6	102.8
OATS								
Germany	144,209	136,795	144,210	450,651	427,482	450,653	105.4	100.0
Belgium	15,293	15,483	15,044	47,790	48,384	47,013	98.8	101.7
Bulgaria	2,712	2,754	2,327	8,474	8,605	7,272	98.5	116.5
Spain	14,334	13,335	13,333	44,794	41,670	41,664	107.5	107.5
Finland	12,405	14,684	12,952	38,765	45,886	40,475	84.5	95.8
England and Wales	26,746	27,774	32,032	83,580	86,793	100,098	96.3	83.5
Greece	2,205	2,073	1,595	6,889	6,477	4,985	106.4	138.2
Hungary	5,961	4,278	7,753	18,629	13,368	24,227	139.4	76.9
Italy	13,771	13,075	13,112	43,034	40,860	40,974	105.3	105.0
Luxemburg	1,058	871	984	3,307	2,721	3,076	121.5	107.5
Netherlands	6,043	6,331	7,341	18,884	19,784	22,941	95.5	82.3
Rumania	16,755	14,776	24,354	52,360	46,175	76,107	113.4	68.8
Switzerland	750	739	926	2,342	2,308	2,894	101.5	81.0
Yugoslavia	5,620	5,837	7,283	17,563	18,242	22,759	96.3	77.2
Totals	267,862	258,805	283,246	837,062	808,755	885,138	103.5	94.6
Canada 2)	129,853	111,615	134,725	405,792	348,795	421,014	116.3	96.4
United States	388,800	355,852	380,694	1,215,000	1,112,037	1,189,662	109.3	102.1
Totals	518,653	467,467	515,419	1,620,792	1,460,832	1,610,676	110.9	100.6
Algeria	2,381	2,628	4,169	7,441	8,212	13,028	90.6	57.1
Tunis	617	728	780	1,929	2,274	2,429	84.8	79.1
Totals	2,998	3,356	4,949	9,370	10,486	15,457	89.4	60.6
GRAND TOTALS	789,513	729,628	803,614	2,467,224	2,280,073	2,511,271	108.2	98.2

w) Winter wheat. — s) Spring wheat. — 1) Including spelt and meslin. — 2) Conjectural estimate based on area and crop condition on August 1. — 3) Including meslin.

The rye and barley crops appear to be considerably above the small crops of last year and also above the average in all the more important countries.

The available information regarding oats seems to indicate a production certainly above the deficitary production of 1931 and not far from the average.

As regards the Soviet Union precise information on crop results is lacking. Taking into account the diminution of area sown, especially in some areas very important for export, the weather, which has not always been favourable, and the difficulties under which, according to official declarations, harvesting has been carried on, it seems probable that the quantities available for export will this year be smaller than last year.

In North America the persistence of dry and very hot weather in the majority of the areas producing spring cereals in Canada and in the United States has worsened crop condition and reduced expectations of yield notably for spring wheat.

The threshing of winter wheat in the United States has given results above expectations and the estimate of areas sown to spring wheat in Canada shows that the area devoted to this crop exceeds expectations based on declarations of growers just before sowings.

In all, the production of wheat in Canada and the United States, according to the first estimates of yield for winter wheat and on the basis of area sown and crop condition at the beginning of August for spring wheat, shows a reduction of 67 million bushels with respect to last year and of 164 million with respect to the five-year average.

On the other hand the expectations for rye, barley and oats in North America considerably exceed the deficitary crops of 1931 and approximate to the average.

Wheat production of the few Asiatic countries for which crop estimates are available is only slightly below that of last year, due to slightly smaller production in India; the total of the figures available is, however, slightly greater than the average. It should be noted that data for China, where, according to information of a provisional and incomplete character, the crop has been distinctly deficitary, are not included.

In North Africa production of wheat and barley in French territories corresponds approximately to that of last year and to the average, the less favourable results in Morocco having been compensated for by the good harvests in Algeria and Tunisia.

For the northern hemisphere (excluding the U. S. S. R. and China), taking into account the preliminary estimates at present available for some countries and the information available for countries for which figures are still lacking, crop prospects may be summarized as follows.

The total production of wheat will probably be little below — by about 40 million bushels — that of 1931 and will approximate very closely to that of last year and to the five-year average (about 3,120 million bushels); those of rye and barley will greatly exceed the figures of 1931 and the respective averages; that of oats will be above that of last year and nearly equal of the average.

It may be recalled that in the exporting countries there still exist large stocks of old crop wheat. The amount of these stocks and of quantities afloat on 1 August 1932 and at the same date for a series of preceding years may be stated as follows:

Stocks of old crop wheat on 1 August (including flour expressed in terms of grain).

	1926	1927	1928	1929	1930	1931	1932
Million centals							
United States (1)	57	76	84	157	178	204	234
Canada (2)	24	34	55	77	77	84	81
Argentina (3)	29	30	41	61	21	36	24
Australia (3)	7	17	16	17	24	20	20
Quantity afloat	23	28	27	22	24	23	19
Totals	140	185	223	334	324	367	378
Million bushels							
United States (1)	96	127	140	261	297	340	390
Canada (2)	40	56	91	127	128	139	136
Argentina (3)	48	49	68	102	36	60	39
Australia (3)	12	28	27	29	39	33	33
Quantity afloat	39	46	45	37	39	38	31
Totals	235	306	371	556	539	610	629

(1) Including domestic wheat in store in Canada. Stocks in the United States as estimated on 1 July have been carried forward to 1 August, the quantity exported in July being subtracted; to ensure comparability some modifications based on approximate calculations have also been made to the data for the years previous to 1930.

(2) Including domestic wheat in store in U. S. A.

(3) Quantities exportable on 1 August.

As may be seen from these data the quantities of wheat remaining in the large exporting countries at the end of the season just ended exceeded those recorded on 1 August 1931. It is probable that stocks in the other countries have been further reduced in the 1931-32 season and this would compensate for the increase known to have occurred in the large exporting countries. In any case the total decrease in stocks expected last season has not been realized; the 1931 crop, of which the results were larger than those indicated by the first estimates, sufficed to cover world consumption, which was below expectations.

The commercial year just begun has available stocks of old crop wheat almost equal to those at the beginning of 1931-32 and a production that on the basis of information at present available for the northern hemisphere as a whole approximates closely to that of 1931. As regards probable demand in the current season the large rye crop in the countries where this is an important bread-grain and the good production expected for maize and potatoes may affect wheat consumption.

A complete picture of the relation between world supply and demand cannot, however, be formed until crop prospects in the southern hemisphere are more clearly defined. All that can now be said regarding the crops of the southern hemisphere is that areas sown to wheat have undergone a notable extension both in Argentina and Australia and that so far, while as regards the former country the most recent information is less satisfactory due to locusts and rain damage in the northern areas, the weather in the latter has been favourable.

Germany : The warm dry weather of the first half of July accelerated ripening, especially on the light lands of the west. Some drought damage is reported. In the South and Centre harvesting was checked by rains after mid-July. In some places yields have been reduced by laying.

The area under spelt is estimated at about 282,000 acres, as in 1931, a decrease of 7.8 % on the 1926-30 mean.

Production should be about 3,505,000 centals, 19.2 % above that of 1931 and 9.5 % above the mean.

Austria : Intense heat continued from the end of June to almost the end of the second decade of July; rains were at a minimum during this period and over a large part of the country were completely lacking. In the third decade of July a sharp change in the weather occurred with general and copious showers.

The warm season stimulated ripening of cereals, which were backward and in most lowlying lands it was possible to carry out harvesting rapidly. The subsequent bad weather hindered bringing in of the crop; damage is, however, mainly local.

The winter wheat crop is entirely saved in the lowlands while in the uplands the harvest is in progress; the grains are full and specific gravity is high; yield of straw is smaller. Spring wheat is already ripening in the lowlands and promises good yields. The winter rye crop is fairly well forward; the grains are large and heavy, though their quality has somewhat suffered in a number of areas from laying; the straw is healthy and abundant. Spring rye, which is already yellowing in areas of medium elevation, has also large, full grains.

The barley crop looks well though much spring barley was harvested in rainy weather and is somewhat discoloured. In general yield is better for grain than for straw. Harvesting of oats has begun on early fields. The ears are well developed and full; the stems are of satisfactory length only on the moister lands.

Belgium : In the first three weeks of July weather was generally dry, hot and sunny. After 20 July rains set in and caused fairly general lodging and in some localities hail caused damage. In general cereals are in good condition. The greater part of the winter-barley has been brought in and threshing has begun. Yields are good. Much of the rye has also been brought in.

Bulgaria : The abundant and torrential rains of July were deleterious to cereals, particularly to wheat, and have appreciably reduced the first estimates of production.

Area and Crop Condition.

COUNTRIES	AREA SOWN					CROP CONDITION (†)																	
	1931-32	1930-31	Average 1925-26 to 1929-30	% 1931-32		I-VIII-1932			I-VII-1932			I-VIII-1931											
				1930-31	Aver. = 100																		
	Thousand acres			= 100	= 100	a)	b)	c)	a)	b)	c)	a)	b)	c)									
WHEAT.																							
Germany	(w) 4,876	4,652	3,804	104.8	128.2	—	—	—	2.5	—	—	—	—	—									
	(s) 751	702	384	106.9	195.3	—	—	—	2.6	—	—	—	—	—									
Austria	(w) 495	485	482	102.0	102.7	—	—	—	2.5	—	—	2.9	—	—									
	(s) 22	27	27	—	—	2.4	—	—	2.6	—	—	—	3.0	—									
Belgium	391	381	384	102.4	101.7	—	—	—	d)	—	—	—	—	—									
Bulgaria	2,906	2,964	2,754	98.1	105.5	125	—	—	125	—	—	145	—	—									
*Denmark	—	259	257	—	—	—	100	—	—	—	99	—	—	97									
Spain	10,601	11,245	10,786	94.3	98.3	—	—	—	d)	—	—	—	—	—									
Estonia	(w) 44	38	31	115.6	141.9	103	—	—	102	—	—	—	—	199									
Finland	50	47	40	106.8	126.6	115	—	—	—	—	98	107	—	—									
France	(w) 12,973	11,725	12,650	110.6	102.6	—	—	—	—	—	—	—	—	—									
	(s) 283	769	402	36.9	70.4	—	—	—	—	—	—	—	—	—									
England and Wales	1,288	1,197	1,460	107.6	88.2	—	—	—	—	—	—	—	—	—									
Scotland	52	50	57	104.9	92.7	106	—	—	105	—	—	—	—	95									
Northern Ireland	4	3	5	131.2	79.2	—	—	—	—	—	—	—	—	—									
Hungary	3,963	4,011	3,953	98.8	100.2	—	—	—	—	—	—	—	—	—									
Italy	12,199	11,981	12,083	101.8	101.0	—	—	—	—	—	—	—	—	—									
*Latvia	(w) —	149	105	—	—	110	—	—	110	—	—	—	—	80									
Lithuania	514	478	401	107.4	128.1	123	—	—	120	—	—	106	—	—									
Luxemburg	22	23	30	97.8	73.9	2.1	—	—	2.0	—	—	2.8	—	—									
Malta	10	10	9	99.2	103.9	—	—	—	—	—	—	—	—	—									
*Norway	—	29	27	—	—	101	—	—	—	—	s) 97	—	—	91									
Netherlands	293	192	137	152.2	212.9	175	—	—	180	—	—	171	—	—									
Poland	(w) 3,848	4,137	3,255	93.0	118.2	1) 3.2	—	—	1) 3.1	—	—	1) 3.5	—	—									
	(s) 359	358	222	100.0	161.5	1) 3.4	—	—	1) 3.3	—	—	1) 3.3	—	—									
Rumania	7,137	8,566	7,625	83.3	93.6	—	—	—	f)	—	—	—	—	95									
*Sweden	—	683	544	—	—	117	—																

COUNTRIES	AREA SOWN				CROP CONDITION (%)								
	1931-32	1930-31	Average 1925-26 to 1929-30	% 1931-32									
					1930-31			1-VIII-1932			1-VII-1932		
					Thousand acres		Aver. = 100						
								a)	b)	c)	a)	b)	c)
RYE.													
Germany	(w) 10,825	10,610	11,425	102.0	94.7	—	—	—	—	2.5	—	—	—
Austria	(s) 168	179	202	93.6	83.0	—	—	—	—	2.7	—	—	—
Belgium	(w) 891	865	891	103.5	100.0	2.3	—	—	—	2.4	—	—	—
Bulgaria	(s) 39	39	51	—	—	2.5	—	—	—	2.6	—	—	—
*Denmark	573	553	569	103.6	100.7	—	—	—	—	f)	—	—	—
Spain	598	597	521	100.1	114.7	130	—	—	130	—	—	145	—
Estonia	332	415	—	—	—	—	—	97	—	—	97	—	97
Finland	1,469	1,516	1,658	96.9	88.6	—	—	—	e)	—	—	—	—
France	361	356	351	101.5	102.8	110	—	—	110	—	—	—	195
Hungary	544	554	540	98.2	100.7	104	—	—	104	—	—	100	—
Italy	1,781	1,744	1,899	102.1	93.8	—	—	—	—	—	—	—	—
*Latvia	1,561	1,486	1,631	105.1	95.7	—	—	—	—	—	—	—	—
Lithuania	278	284	305	97.9	91.1	—	—	—	—	—	—	—	—
Luxembourg	572	628	—	—	—	115	—	—	115	—	—	—	60
*Norway	1,186	1,257	1,164	94.3	101.9	123	—	—	126	—	—	—	80
Netherlands	17	16	18	108.1	97.1	1.8	—	—	2.0	—	—	2.4	—
Poland	15	20	—	—	—	w)103	—	—	w)103	—	—	—	w)87
Rumania	407	445	485	91.6	84.1	r)73	—	—	r)77	—	—	—	r)65
Sweden	(w) 13,774	14,201	13,996	97.0	98.4	r) 3.4	—	—	r) 3.3	—	—	—	r) 2.9
Switzerland	(s) 60	62	82	96.6	73.3	r) 3.0	—	—	r) 3.0	—	—	—	r) 2.9
Czechoslovakia	791	1,006	779	78.6	101.5	—	—	—	f)	—	—	—	—
Yugoslavia	511	686	—	—	—	r)112	—	—	—	—	—	—	r)90
Total Europe	45	46	49	99.5	92.3	—	—	95	102	—	—	—	92
U. S. S. R.	2,588	2,490	2,548	103.9	101.6	w)2.3	—	—	w)2.4	—	—	—	w)3.5
Canada 3)	615	625	557	98.5	110.5	—	—	—	—	—	—	—	—
United States 3)	38,532	38,892	39,670	99.1	97.1	—	—	—	—	—	—	—	—
Total America	65,731	68,380	65,481	96.1	100.4	—	—	—	—	—	—	—	—
Algeria	(w) 606	599	705	101.3	86.0	—	—	—	—	92	—	—	—
GRAND TOTAL	(s) 159	179	251	88.8	63.4	—	—	91	—	96	—	—	57
	3,324	3,127	3,312	106.3	100.4	—	—	—	82.2	—	—	—	68.2
	4,089	3,905	4,268	104.7	95.8	—	—	—	—	—	—	—	—
	5	3	4	161.1	147.3	—	—	—	100	—	—	—	—
	(m) 42,626	42,800	43,942	99.6	97.0	—	—	—	—	—	—	—	—
	(w) 108,357	111,180	109,423	97.5	99.0	—	—	—	—	—	—	—	—
BARLEY.													
Germany	(w) 611	561	444	108.9	137.7	—	—	—	2.6	—	—	—	—
Austria	(s) 3,271	3,440	3,295	95.1	99.3	—	—	—	2.5	—	—	—	—
Belgium	(w) 18	18	23	95.9	76.1	2.4	—	—	2.6	—	—	2.8	—
Bulgaria	(s) 398	404	364	98.7	109.4	2.4	—	—	2.5	—	—	3.0	—
*Denmark	89	70	78	126.9	114.2	—	—	—	100	—	—	—	—
Spain	605	607	591	99.7	102.5	120	—	—	120	—	—	145	—
*Estonia	889	863	—	—	—	—	—	97	—	95	—	—	97
Finland	4,553	4,644	4,481	98.0	101.6	—	—	—	d)	—	—	—	—
France	279	276	276	109.1	108.8	—	—	97	—	—	94	—	96
England and Wales	103	116	125	89.0	82.4	—	—	—	—	—	—	—	—
Scotland	300	276	276	109.1	108.8	—	—	97	—	—	—	—	—
Hungary	(w) 414	423	408	97.8	101.5	—	—	—	—	—	—	—	—
Italy	(s) 1,445	1,490	1,313	96.9	110.0	—	—	—	—	—	—	—	—
Lithuania	963	1,029	1,104	93.6	87.2	—	—	—	—	—	—	—	—
Luxembourg	70	88	112	79.6	62.6	100	—	—	100	—	—	100	—
Malta 5)	1,158	1,165	1,077	99.3	107.6	—	—	—	2.6	—	—	—	—
*Norway	535	543	579	98.5	92.4	—	—	—	—	—	—	—	—
Netherlands	495	474	499	104.4	99.2	113	—	—	113	—	—	120	—
Poland	10	11	9	89.9	114.1	2.3	—	—	2.4	—	—	2.4	—
Rumania	6	7	7	90.3	94.0	—	—	—	—	—	—	—	—
Switzerland	138	142	—	—	—	102	—	—	—	—	99	—	91
Czechoslovakia	(w) 50	71	71	70.3	70.0	r)71	—	—	r)71	—	—	r)71	—
Yugoslavia	(s) 125	128	175	97.9	71.7	r) 3.4	—	—	r) 3.2	—	—	r) 3.2	—
Total Europe	3,017	3,001	2,730	100.5	110.5	r) 3.6	—	—	r) 3.3	—	—	r) 3.2	—
	4,547	4,742	4,494	95.9	101.2	—	—	—	e)	—	—	—	—
	17	18	16	98.6	107.7	r)104	—	—	—	—	—	—	r)97
	1,744	1,781	1,759	97.9	99.1	s) 2.4	—	—	s) 2.3	—	—	—	s) 3.1
	1,040	1,117	1,022	93.0	101.7	—	—	—	—	—	—	—	—
	25,584	26,224	25,052	97.6	102.1	—	—	—	—	—	—	—	—

COUNTRIES	AREA SOWN					CROP CONDITION (†)								
	1931-32	1930-31	Average 1925-26 to 1929-30	% 1931-32		I-VIII 1932			I-VII-1932			I-VIII-1931		
				1930-31 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
			Thousand acres											
U. S. S. R.	16,329	16,854	18,169	96.9	89.9	—	—	—	—	—	—	—	—	—
Canada 3)	3,728	3,768	4,704	98.9	79.3	—	—	87	—	—	93	—	—	63
United States 3) .	13,895	11,428	11,231	121.6	123.7	—	—	73.6	—	—	81.6	—	—	55.5
Total America . .	17,623	15,196	15,935	116.0	110.6	—	—	—	—	—	—	—	—	—
Japan	2,093	2,105	2,265	99.4	92.4	—	—	f) e)	—	—	—	—	—	—
Syria and Lebanon	810	941	746	86.0	108.6	—	—	—	f)	—	—	—	—	—
Total Asia . . .	2,903	3,046	3,011	95.3	96.4	—	—	—	—	—	—	—	—	—
Algeria	3,203	3,178	3,505	100.8	91.4	—	—	80	—	—	90	—	—	70
Cyrenaica . . w)	47	82	99	57.7	47.5	—	—	—	—	—	—	—	—	—
*Egypt	—	306	364	—	—	—	—	108	—	—	—	—	—	—
French Morocco .	2,930	3,222	2,995	90.9	97.8	—	—	—	—	—	—	—	—	—
Tunis	1,483	1,223	1,235	121.2	120.1	—	—	—	—	—	—	—	—	—
Total Africa . . .	7,663	7,705	7,834	99.5	97.8	—	—	—	—	—	—	—	—	—
GRAND TOTAL. (m)	53,773	52,171	51,832	103.1	103.7	—	—	—	—	—	—	—	—	—
(n)	70,102	69,025	70,001	101.6	100.1	—	—	—	—	—	—	—	—	—
OATS.														
Germany	8,115	8,310	8,634	97.7	94.0	—	—	—	2.7	—	—	—	—	—
*Austria	—	777	759	—	—	2.3	—	—	2.5	—	—	—	—	3.1
Belgium	714	729	682	98.0	104.7	—	—	—	e)	—	—	—	—	—
Bulgaria	304	295	335	102.9	90.6	130	—	—	130	—	—	140	—	—
*Denmark	—	937	999	—	—	—	—	92	—	—	—	—	—	98
Spain	1,826	1,986	1,902	91.9	96.0	—	—	—	e)	—	—	—	—	—
*Estonia	—	367	356	—	—	1) 105	—	—	—	—	—	1) 107	—	—
Irish Free State .	623	623	650	100.0	95.8	—	—	—	—	—	—	—	—	—
Finland	1,119	1,149	1,100	97.4	101.8	—	—	92	—	—	99	—	—	98
France w)	2,123	2,174	2,021	97.7	105.1	—	—	—	—	—	—	—	—	—
(s)	6,295	6,456	6,563	97.5	95.9	—	—	—	—	—	—	—	—	—
England and Wales	1,577	1,652	1,802	95.5	87.5	—	—	—	—	—	—	—	—	—
Scotland	866	835	893	103.8	96.9	103	—	—	105	—	—	—	—	95
North Ireland . .	285	286	312	99.8	91.5	—	—	—	—	—	—	—	—	—
Hungary	585	596	665	98.2	87.9	—	—	—	2.9	—	—	—	—	—
Italy	1,177	1,206	1,255	97.6	93.8	—	—	—	—	—	—	—	—	—
Lithuania	931	900	828	103.4	112.4	110	—	—	110	—	—	123	—	—
Luxemburg	74	75	72	98.9	102.9	2.0	—	—	2.6	—	—	2.4	—	—
*Norway	—	237	241	—	—	—	—	98	—	—	—	—	—	84
Netherlands . . .	350	369	378	94.9	92.5	—	—	1) 66	—	—	1) 65	1) 71	—	—
Poland	5,367	5,367	5,125	100.0	104.7	1) 3.5	—	—	1) 3.4	—	—	1) 3.2	—	—
Rumania	2,100	2,154	2,757	97.5	76.2	—	—	—	e)	—	—	—	—	—
*Sweden	—	1,590	1,729	—	—	1) 103	—	—	—	—	—	—	—	1) 99
Switzerland . . .	41	45	50	89.7	81.4	—	—	98	—	—	99	—	—	—
Czechoslovakia . .	2,023	2,042	2,081	99.1	97.2	2.2	—	—	2.3	—	—	—	—	3.0
Yugoslavia	848	974	969	87.0	87.5	—	—	—	—	—	—	—	—	—
Total Europe . . .	37,343	38,223	39,074	97.7	95.6	—	—	—	—	—	—	—	—	—
U. S. S. R.	35,149	42,492	43,286	82.7	81.2	—	—	—	—	—	—	—	—	—
Canada 3)	13,138	12,871	12,971	102.1	101.3	—	—	90	—	—	95	—	—	74
United States 3) .	41,994	39,719	40,230	105.7	104.4	—	—	75.3	—	—	78.1	—	—	70.0
Total America . .	55,132	52,590	53,201	104.8	103.6	—	—	—	—	—	—	—	—	—
Syria and Lebanon	28	27	42	102.3	66.6	—	—	—	—	—	—	—	—	—
Algeria	498	557	605	89.4	82.4	—	—	75	—	—	80	—	—	70
French Morocco . .	63	60	82	106.0	77.2	—	—	—	—	—	—	—	—	—
Tunis	86	67	109	129.6	79.3	—	—	—	—	—	—	—	—	—
Total Africa . . .	647	684	796	94.9	81.7	—	—	—	—	—	—	—	—	—
GRAND TOTAL. (m)	93,150	91,524	93,113	101.8	100.0	—	—	—	—	—	—	—	—	—
(n)	128,299	134,016	136,399	95.7	94.1	—	—	—	—	—	—	—	—	—

*) Countries not included in the totals. — †) See explanation of the various systems, page 507. — a) Above the average. — b) Average. — c) Below the average. — d) Very good. — e) Good. — f) Average. — g) Bad. — m) Not including U. S. S. R. — n) Including U. S. S. R. — s) Spring crop. — w) Winter crop. — 1) At the middle of the previous month. — 2) Including spelt and meslin. — 3) The area for 1931-32 is that which it is anticipated will be harvested; for previous years the figures refer to the area harvested. — 4) European crops only. — 5) Including meslin.

Estonia : The end of June and the beginning of July were unusually unfavourable for vegetation; the drought was considerably longer than last year and continued till the middle of July, when there was much rain though not enough everywhere. The dry weather hindered normal growth especially of spring crops; autumn-sown wheat was stronger but it is feared that the grain will remain small. The flowering of rye was satisfactory and a larger harvest is expected.

Condition of meslin on 15 July was 100 according to the system of the Institute against 107 on 15 July 1931.

Finland : According to the latest estimate production of meslin is this year about 464,000 centals (801,000 bushels) against 288,000 (497,000) in 1931 and 323,000 (557,000) on the average of the five years ending 1930; 161 % and 144 %.

France : The second half of July and the first week of August were marked by very irregular conditions, rather frequent rains or violent storms almost everywhere, alternating with very hot days, conditions were on the whole rather unfavourable to wheat, which was still backward; in all areas laying, take-all, and in places even rust, developed. The Provencal south everywhere suffered from storms in the middle of harvesting and all the sheaves as well as the standing corn were damaged; in quantity as in quality the crop appears bad. In the South-west storms also caused losses, less important however, and yields appear more less average; specific gravity and quality are very irregular and rather mediocre. The situation improves northward, being good in the Centre and West and very good in the Paris area and the North despite a certain number of laid fields, which will be difficult to cut; quality and specific gravity appear good if not very good, with some irregularity however, In the east the situation is not very satisfactory.

On the whole the crop appears rather good. Private estimates give a probable total of between 190 (310) and 200 million centals (330 million bushels) which is considered to be practically sufficient to cover internal requirements, but these estimates are based on the supposition of an extension of sowings beyond the area officially given.

Winter oats are mediocre in the South-west, rather good in the South and Centre; in the Paris Basin and the North winter oats have given fairly satisfactory results, but spring oats, despite improvement brought by the rains of the latter half of July, are attacked by weeds and are very irregular and badly laid. Similar conditions hold good in the East. On the whole the oats crop appears rather below the average.

The barley and winter-barley crops appear, on the other hand, to be good both in quantity and quality.

Rye is also generally satisfactory.

Buckwheat has a good appearance; flowering has taken place under good conditions and crop prospects are good.

The weather in the second half of August was fine apart from some brief local showers and ripening was completed and the harvest made under good conditions. Yields from first threshings confirm the widespread agricultural opinion that the wheat crop is certainly above 175 million centals (295 million bushels), while commercial circles continue of talk of a crop of 200 (330) millions. The oats crop will probably be ordinary and that of barley average.

Great Britain and Northern Ireland : The first half of July was, like June, warm and on the whole dry, but the latter half of the month was unsettled with frequent and

sometimes tempestuous rains throughout the area. Some lodging is reported. Growth was, however, rapid and good yields are generally expected. Except for occasional cuttings of oats in the South of England harvesting had not commenced at the end of July and was expected to be somewhat late.

The barley area in Northern Ireland, which is too small for inclusion in the tables, is estimated at 1,090 acres, a decrease of 26 % on that of 1931 and of 40 % in the mean; the area of rye is 430 acres, an increase of 3 % and a decrease of 31 % with respect to the above periods.

Greece: The latest information from the Ministry of Agriculture confirms the previous indications of an exceptionally good crop.

Hungary: The period from 7 to 20 April was characterised at first by very high temperatures, which subsequently fell, and by frequent severe storms; subsequently, from 21 July to 3 August, the weather was prevalently cold and dry. At the end of the latter period harvesting of wheat, rye and barley had been completed and threshing was in progress; oats were being harvested and had been partly brought in and threshed.

Forecasts of the wheat crop, which suffered greatly from rust, are low. Those of rye have risen; the grain is generally well developed, quality is good and yield of straw satisfactory. For barley the grain is fairly full, quality is generally good and yields average. For oats quality varies greatly according to locality, but on the whole production seems below average.

Italy: In July harvesting and threshing was more or less impeded by bad weather. Threshing results for many provinces, especially in Central Italy, indicate a production considerably above that expected last month. Harvesting of other cereals is over.

Latvia: Temperatures in July were considerably above normal. In the first half of the month the weather was hot and dry; in the second half there were numerous heavy showers but precipitation remained below normal. In some areas there were heavy hailstorms which caused considerable damage to wheat. The hot sunny days did not have a favourable influence on development of cereals.

Condition of winter wheat on 15 July was average according to 35.5 % of correspondents' replies, above average according to 59.4 % and below average according to 5.1 %. The corresponding figures for rye are: 33.3 %, 63.5 % and 3.2 %; for barley: 49.6 %, 21.4 % and 29.0 %; for oats: 49.4 %, 25.0 % and 25.6 %.

Lithuania: The first half of July was warm and rainless but the latter half was marked by variable and stormy weather. Rye was harvested under good conditions but wheat was compromised by rain.

Condition of meslin on 1 August was 120 according to the system of the Institute against 113 on 1 July 1932 and 123 on 1 August 1931.

Luxemburg: The predominantly rainy weather of July and the heavy showers lowered quality of wheat, which has been to a large extent laid.

Production of meslin is estimated at about 132,000 centals (228,000 bushels) against 93,900 (161,900) in 1931 and 122,500 (211,300) in 1926-30; 141 % and 108 %.

Norway: Crop condition of meslin on 1 August was 100 according to the system of the Institute against 99 on 1 July 1932 and 91 on 1 August 1931.

Netherlands: Crop condition of wheat is generally good and in several parts of the country very good. Rye and barley are in good condition but oats has suffered from drought, especially in the higher areas; its condition varies from good to fairly good.

Poland: Between mid-June and mid-July weather was rather dry and hot. In Poznan and Pomorze laying was reported, though in other areas this was insignificant. Storms and frosts did not cause any considerable damage. The general appearance of cereals on 15 July showed an improvement with respect to 15 June. In the second half of the month, however, on the eve of the harvest, a severe attack of rust was reported, especially in Galicia.

Portugal: The weather has favoured development, rains having been opportune. Production of wheat, of which the estimate is already known and of rye are considerably above those of 1931.

Rumania: Rust attacked wheat in the second half of June, causing serious damage, so that the first estimates of probable yields have been very appreciably reduced. The areas most affected are the Danube plain, southern Bessarabia and the Tisa plain. Harvesting began between 20 June and 10 July and was generally carried out under good conditions.

Sweden: During June temperatures were generally rather below the mean and in the first week of the month there were night frosts in the northern areas. In July temperatures rose and often exceeded the mean by 5-7° C. June was dry in the agricultural areas, especially in the south, and the drought was maintained till the beginning of July, precipitation in many areas being even less than half normal. Toward mid-July plentiful rains improved crop condition, which promised good yields.

Switzerland: Crop prospects are appreciably lower than last month. The frequent storms and violent showers almost everywhere caused laying of cereals so that weeds spread rapidly. The wet weather also favoured various cryptogamic diseases and this has compromised still more the already inferior quality of the grain. Crops have been greatly delayed by the continual rains and yield of grain shows a marked deficit. The cereal crop is still therefore considerably smaller than last year and much below the normal.

Production of spelt is estimated at 615,000 centals, 1.5 % above that of last year (606,000) and 13.6 % below the average for 1926-30 (704,000); the crop has been grown on an area of 31,400 acres as in 1931, and 7.6 % below the average. The meslin crop has been grown on an area of 13,600 acres, the same as that of 1931 and 5.2 % above the average; it should give a production of 265,000 centals (456,000 bushels), 1.7 % above that of last year, 260,000 (449,000) and 1.0 % below the average, 267,000 (461,000).

Czechoslovakia: Throughout most of the country the prevalently rainy weather of June continued in July, causing much lodging and delay in harvesting. In some districts of Central and Southern Moravia, Eastern Slovakia and Subcarpathian Russia on the other hand drought persisted. In parts of Bohemia and Moravia rust was widespread. Generally the cereal crop is expected to be satisfactory in quantity though quality is compromised.

Yugoslavia : Hot and sunny weather at the beginning of July was followed by changeable rather rainy weather. Floods and rust, the latter especially in the Vojvodina have caused heavy losses in certain areas. Wheat production does not, therefore, appear promising.

U. S. S. R. : The dry and rather cool weather in July favoured bringing in of cereals almost everywhere in the Union. The harvest, which began early in July in the southern areas and was in progress in the north at the beginning of August, has, however, been rather slow.

According to the People's Commissariat for Agriculture in a report of 10 August the area harvested throughout the Union was 111,033,000 acres, 53.1 % of the area sown, against 140,966,000 (65.5 %) harvested at the same date last year. The backward areas are Ukraina, where 28,506,000 acres had been harvested (73.1 %) against 42,216,000 in the preceding year, Northern Caucasus, with 13,631,000 acres (75.0 %) against 17,607,000, and Upper and Middle Volga, with 20,184,000 (66.0 %) against, 27,145,000.

Stooking was also backward, the production of 40,711,000 acres, 36.7 % of the area harvested, having been stooked up to 10 August. The production of 14,676,000 acres (13.2 %) had been threshed. The backwardness is according to the Soviet press due especially to inadequate preparations and to local administrative shortcomings in the working out of the harvesting plan on *soukhhozi*.

In fact, according to the same source, the area harvested on 10 August on the *soukhhozi* was 8,019,000 acres (39.2 %) of the total sown, in the *kolkhozi* 80,073,000 acres (55.1 %) against 92,525,000 last year and, including *kolchozi* comprised in "tractor areas", 48,426,000 acres (68.3 %). Harvesting is backward on the individualistic holdings also, where on 10 August 22,942,000 acres (53.1 %) had been harvested against 41,037,000 last year.

Following the concession of privileges to members of *kolkhozi* in order to stimulate both harvesting and sales to the State, the Government took severe measures against sabotage, theft and other anti-social conduct.

The lack of official data makes forecasts for the next crop impossible. All that is known is that total area sown this year is about 7 % less than last year and that according to official sources, average unit yields should be higher than last year.

Argentina : Weather up to the second decade of July was very favourable to germination. Crop condition was particularly good in the areas where volcanic ash fell most abundantly, increasing soil humidity. Varieties having a long growth cycle and selected from time to time are generally used. It is confirmed that this year there is a 20 % increase in area sown to spring wheat in the province of Buenos Aires, 15 % in Santa Fe, and 25 % in Santiago del Estero. An increase is also expected in Cordoba and San Luis, while area remains unchanged in Entre Rios. A decrease has occurred only on the Pampa.

Canada : On 16 August the Western harvest was proceeding in almost ideal weather. In Saskatchewan and Central Alberta, where considerable deterioration had occurred due to the prolonged dry weather, good rains had fallen during the past week, but general precipitation was still needed. Temperatures remained high except in Central Alberta, where a sharp drop occurred.

There was more fear of frost in northern areas than of rust in the south. Over the whole West there had generally been little change since the beginning of August,

though perhaps a slight net depreciation. The weather had, in fact, been too hot and dry for proper filling of the grain.

There was some grasshopper damage in Manitoba and in parts of Saskatchewan and Alberta.

Grades will be lower this year.

Rye has given better results than expected. Barley and oats have suffered more than wheat from insects and weather.

United States : At the end of July rain was still necessary to insure a satisfactory harvest. Threshing of spring wheat began early in August and that of winter wheat and oats drew to a close.

On 17 August threshing of winter wheat and of oats had been completed and harvesting of spring wheat was well forward. Late spring wheat had need of rains to assure a satisfactory harvest. Fall ploughing had been started.

The reduction in winter wheat acreage this year is due partly to decreased sowings last fall and partly to unusually heavy abandonment. The unusually heavy abandonment of spring wheat in the summer of 1931 should be taken into account in comparing the area of spring wheat with that of last year. Last year the winter wheat crop was unusually large and the spring wheat crop unusually small ; this year the situation is reversed, with a very short winter wheat crop now harvested and prospects as on 1 August of a large spring wheat crop.

The barley acreage is the highest on record the increase having occurred in all except three States and being marked in the leading States, especially the Dakotas, Nebraska and Kansas. Heavy abandonment of winter wheat accounts partly for the increase in Nebraska, Kansas, Colorado, and Montana.

China : The preliminary estimate of this year's wheat and barley crop in Shantung, Shansi, Hopei, Kiangsu, Anhwei, Honan, Hupeh and Chekiang is \$7,440,000 centals for wheat and 271,180,000 centals for barley, respectively 30 % and 23 % below the normal for these provinces, which in a normal years supply 70 % and 68 % respectively of the total wheat and barley production of China.

Syria and Lebanon : Weather has been fairly favourable in the last few days to growth and harvesting.

Algeria : Temperatures in the latter half of July were low for the season with mist on the coast. Harvesting and threshing were finished under excellent conditions. If the wheat crop which appears to be still above the preliminary estimate of last month is excellent, that of barley and especially that of oats were diminished by frost and drought ; yields of barley are, however, not much below the average and the decreased production is due particularly to reduced sowings.

The quality and specific gravity of wheat is good, but those of barley and oats, which were affected in some areas by frosts and of which growth has suffered from the lack of moisture, are more irregular.

French Morocco : Contrary to all expectations and to information from private sources obtained during threshing, the official estimate indicates a mediocre production for all cereals. On the other hand specific gravity appears to be high and quality good.

Tunisia: Weather has this year been generally favourable to growth and harvesting though in the South where the crop is, however, of small extension, wheat suffered severely from rust and in the North (Bizerta) excessive moisture in winter, rust and blast have diminished yields, the latter are good or fairly good for hard wheat, with an average of 3.6 centals (5.9 bushels) per acre and very good for soft wheat, 11.9 (19.8); yields of barley are also excellent, 6.0 (10.0). The extension of the soft wheat and barley area has permitted a record crop to be attained this year, that of soft wheat especially, with 2,650,000 centals (4,410,000 bushels) obtained on 220,000 acres, having exceeded last year's crop by 50 % and the five-year average by 100 %. Production of barley should be above the maximum of 1928 which was estimated at 6,000,000 centals (9,900,000 bushels), by one-quarter.

Union of South Africa: Very wet conditions prevailed in the Cape Western Province during June and considerable areas were sown to wheat and other winter crops. Germination was good and sowings were generally promising. Good rains were also experienced in many districts of the Cape North-West and the Karroo so that it was at last possible to sow grain crops in these areas. Over the remainder of the Union, however, conditions have been dry and relatively mild for the time of year. In both the Orange Free State and Transvaal Provinces conditions for winter crops were most unfavourable; in the Free State practically nothing was sown due to the continuous drought and in the Transvaal the area under cultivation has been considerably curtailed by the scarcity of irrigation water.

Australia (Telegram of 16 August): Crop condition of wheat is generally very favourable. There have been general rains. Condition of crops is good; in New South Wales, where moisture was needed last month, an improvement has taken place.

MAIZE

In the principal European producing countries the copious rain in the latter half of July greatly favoured the maize crop, of which the condition at the beginning of August was very promising.

In the United States the dry hot weather that prevailed in July caused deterioration and the crop estimate based on the situation on 1 August is 99 million centals (176 million bushels) below that of the previous month. The estimated production still however exceeds those obtained last year and on the average of the five years ending 1930 by about 10 %. In the first fortnight of August the weather was fairly favourable and crop condition was ameliorated.

* * *

Austria: The crop, favoured by the rains at the end of July, is now progressing more satisfactorily; it has already flowered in the earlier fields; ear formation is taking place.

Bulgaria: The heavy rains of July were very favourable to maize; of which the appearance on 1 August was very good. According to the first estimates this year's production appreciably exceeds that of preceding years but is 15 % below last year.

France : The latter half of July and the first week of August had fairly frequent rains and practically everywhere violent storms, alternating with hot days ; on the whole the weather favoured the crop though in the southwest the wetness of the soil hindered hoeing and the crop is in a dirty condition.

The latest information indicates a small crop in the southwest.

Maize.

COUNTRIES	AREA					CROP CONDITION (†)								
	1932	1931	Average 1926 to 1930	% 1932										
				1931 = 100	Aver. = 100	I-VIII-1932			I-VII-1932			I-VIII-1931		
						Thousand acres								
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria . . . . .	...	152	145	...	...	2.2	—	—	2.6	—	—	2.5	—	—
Bulgaria	1,710	1,676	1,693	102.0	101.0	140	—	—	140	—	—	120	—	—
Spain	1,082	1,053	1,044	102.8	103.7	—	—	—	e)	—	—	—	—	—
France	782	830	843	94.3	92.8	—	—	—	—	—	—	—	—	—
Hungary	2,877	2,749	2,677	104.7	107.5	2.3	—	—	2.5	—	—	—	—	—
Italy 1)	3,278	3,245	3,515	101.0	93.3	—	—	—	—	—	—	—	—	—
Rumania	11,575	11,749	10,851	98.5	106.7	—	—	—	e)	—	—	—	—	—
Switzerland	2	3	3	97.1	75.9	—	—	93	—	100	—	—	—	99
Czechoslovakia	355	347	349	102.3	101.8	—	—	—	—	—	—	—	—	—
U. S. S. R.	9,084	9,741	8,483	93.3	107.1	—	—	—	—	—	—	—	—	—
Canada	125	131	159	95.6	78.8	—	—	—	—	—	90	—	—	—
United States	108,609	105,100	99,449	103.3	109.2	—	—	77.4	84.9	—	—	—	—	76.3
Algeria	17	24	24	69.7	68.6	—	—	85	—	100	—	—	—	75
Kenya 2)	165	196	199	84.3	82.9	—	—	—	—	—	—	—	—	—
It. Somaliland	24	53	39	45.1	61.0	—	—	—	—	—	—	—	—	—
Tunis	44	44	41	100.0	108.2	—	100	—	—	100	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 507. —
1) Maggenzo. — 2) European crops only.

Hungary : The abundant rains of the second decade of July favoured the crop. At the beginning of August growth was vigorous ; the leaves are of fresh green colour, the stems high and grain formation good. If the season remains good a good crop may be expected.

Italy : Crop condition in July promised a good production.

Portugal : Appearance, especially of the early crop, is good, late varieties are regular save on dry and light lands where production is expected to be poor.

Rumania : The abundant rains of the latter half of July were very beneficial and crop condition at the beginning of August was generally very satisfactory.

Yugoslavia : The generally rainy weather in July was very favourable and a very large crop is expected.

United States : At the end of July there was still urgent need of rain throughout the Corn Belt ; serious damage was reported in some parts in the first week of August but crop condition had improved by the following week.

Dry weather prevailed throughout the corn belt in July and rains were urgently needed. On 17 August, however, crop condition was reported better.

This year's acreage is the second highest on record, being exceeded only in 1917, which was also a year of heavy winter wheat abandonment. Most of the increased acreage is accounted for by the decreased planting and heavy abandonment of winter wheat from North Dakota to Kansas and by the heavy reduction in cotton area.

Mexico : The severe heat and drought in June was very deleterious to the crop but the rains toward the end of the month improved its appearance.

French Indo-China : In Tonkin the crop has not been good owing to the drought in January-February. In North Annam autumn maize has given poor yields and in Cambodia yields have also been rather bad.

Palestine : Irrigated crops of maize are good. Dry sown maize is poor and short with small and badly-filled cobs.

Kenya : Though, according to unofficial information, area to be sown to maize this year is considerably less than in 1931, production is expected to be much larger, since last year locust damage was exceptionally severe and this year many of the poorer quality areas will not, owing to lack of working capital, be planted.

Production of Maize.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1931 = 100	Average = 100
	Thousand centals			Thousand bushels			%	
Bulgaria	18,307	21,983	15,239	32,692	39,256	27,212	83.3	120.1
Hungary	50,779	33,459	35,897	90,677	59,749	64,102	151.8	141.5
Rumania	134,923	133,674	101,569	240,935	238,704	181,374	100.9	132.8
Switzerland	60	67	77	106	114	138	93.1	77.1
United States . . .	1,579,200	1,435,432	1,441,334	2,820,000	2,563,271	2,573,817	110.0	109.6
Algeria	141	133	144	252	238	257	106.0	97.9
Ital. Somaliland. .	213	521	417	380	931	745	40.8	51.0

Union of South Africa : The absence of serious frosts until late in the season has resulted in an increase in the crop estimates from several areas. In June the weather was generally dry and relatively mild for the time of year. The fifth estimate places the 1931-32 crop at 33,452,000 centals (59,736,000 bushels), which is 4.5 % above the 1930-31 crop and 6.5 % below the mean of the five years ending 1929-30.

RICE

Italy : The area planted to rice this year is estimated at 341,000 acres against 356,000 in 1931 and 350,000 in 1926-30; percentages 95.7 and 97.3.

Appearance is generally good save in certain provinces where growth is backward.

United States : Reductions in area have been substantial in all States, mostly because of market conditions. Total area is estimated at 845,000 acres against 974,000 in 1931, a decrease of 13.2 %, and 962,400 on the average of 1926-30, a decrease of 12.2 %. Production in estimated at 17,600,000 centals (39,100,000 bushels) against 20,352,000 (45,226,000) in 1931, a decrease of 13.5 %, and 19,402,000 (43,115,000) on the average of 1926-30, a decrease of 9.3 %. Crop condition on 1 August was 85.8 against 82.5 on the same date last year and 85.7 on 1 July of this year.

Formosa : The weather was generally favourable to the rice of second crop which germination was even and uniform.

According to the first estimate area cultivated to rice of the first semester in 1932-33 is about 700,000 acres against 677,400 in 1931-32 and 627,600 on the average of the five years ending 1930-31; percentages 103.3 and 111.5. The corresponding production of milled rice is about 15,987,000 centals (35,526,000 bushels) against 14,474,000 (32,164,000) in 1931-32 and 12,455,000 (27,678,000) in the five-year period; percentages 110.5 and 128.4.

India : In Burma rainfall in the month ending 14 August was normal. In Bengal transplanting of winter padi was progressing as on 10 August but more rain was needed in the north and west. Harvesting of autumn padi was proceeding.

Transplanting was also in progress in Bihar and Orissa and in Madras and the Central Provinces and was proceeding smoothly in Bombay, though in Sind, where early varieties were being transplanted, water supply was reported in the middle of July as inadequate though expected to improve with the rise of the Attock; late varieties were being sown.

In Assam on 15 August more rain was still required, especially in the Assam valley; crop prospects were fair in the middle of August.

French Indo-China : The cold and drought of February-March prevented the crop of the first semester in Tonkin and Annam and that of the dry season in Cambodia making a good start.

The crop of the first semester in Annam occupies 981,000 acres, a distinctly greater area than last year 877,000 acres (111.8 %) but appreciably below the five-year average of 1,085,000 acres (90.3 %).

Yields, though better than last year, appear to be below the mean so that forecasts are for a production 29 % above that of the first semester of 1931 and 23 % below the 1926-30 mean, that is, 7,061,000 centals (15,692,000 bushels) against 5,472,000 (12,160,000) and 9,184,000 (20,408,000).

POTATOES

In the majority of European producing countries weather in July and the first part of August was on the whole more favourable than in June. The first fortnight of July was generally dry and sunny with some sharp summer showers; the second decade of the month and the first days of August were cooler and damper, conditions favouring potatoes.

In Germany, which, excluding the U. S. S. R., is the largest producer in Europe, the weather in July varied greatly between different parts of the country, being dry and sunny in some and very rainy in others, where some damage

was caused to late varieties by the wet condition of heavy lands. There was, however, an improvement in general crop conditions with respect to the previous month.

In France also the crop was favoured by the weather in July in which dry and sunny days alternated with heavy rain. It is, however, too early to give a definite estimate since the losses caused by Colorado beetle are not yet known.

Potatoes.

COUNTRIES	AREA					CROP CONDITION (†)								
	1932	1931	Average 1926 to 1930	% 1932										
				1931 = 100	Aver. = 100	1-VIII-1932			1-VII-1932			1-VIII-1931		
						1,000 acres								
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany. . . {s)	625	598	588	104.5	106.3	2.8	—	—	2.7	—	—	2.7	—	—
Belgium . . . {t)	...	6,381	6,390	...	...	2.6	—	—	2.7	—	—	2.5	—	—
Austria . . . s)	...	61	50	...	...	...	...	...	2.0	—	—	2.7	—	—
Belgium . . .	435	425	410	102.4	106.3	—	—	—	e)	—	—	—	—	—
Bulgaria . . .	37	32	28	115.4	134.3	150	—	—	150	—	—	150	—	—
Denmark . . .	...	157	169	...	...	—	—	96	—	—	95	—	—	94
Estonia . . .	...	168	166	...	...	—	—	89	—	—	—	—	100	—
Irish Free State . .	348	346	363	100.6	96.0	—	—	—	—	—	—	—	—	—
Finland . . .	192	174	173	110.5	111.1	104	—	—	—	—	—	—	—	91
France . . .	3,442	3,474	3,589	99.1	95.9	—	—	—	—	—	—	61	—	—
England and Wales . .	504	447	489	112.7	103.0	—	—	—	—	—	—	—	—	—
Scotland . . .	146	128	140	114.0	104.1	110	—	—	—	—	—	—	—	95
Northern Ireland . .	142	134	150	105.6	94.5	—	—	—	—	—	—	—	—	—
Hungary . . .	729	710	663	102.8	110.0	2.5	—	—	2.4	—	—	—	—	—
Italy . . .	1,018	1,015	870	100.3	117.0	—	—	—	—	—	—	—	—	—
Lithuania . . .	427	409	347	104.4	123.0	120	—	—	117	—	—	123	—	—
Luxemburg . . .	40	41	40	96.0	99.0	2.1	—	—	2.6	—	—	2.7	—	—
Malta . . .	7	7	7	108.1	100.3	—	—	—	—	—	—	—	—	—
Norway . . .	...	116	120	...	...	103	—	—	100	—	—	—	—	94
Netherlands . . .	434	406	428	107.1	101.5	1) 70	—	—	1) 65	—	—	1) 68	—	—
Poland . . .	5,233	6,716	6,250	77.9	83.7	—	—	—	—	—	—	1) 3.7	—	—
Sweden . . .	...	327	354	...	...	—	1) 100	—	—	—	—	—	—	1) 98
Switzerland . . .	115	113	119	102.0	97.0	—	—	89	—	100	—	104	—	—
Czechoslovakia . . .	1,808	1,778	1,772	101.7	102.0	2.4	—	—	2.5	—	—	2.4	—	—
U. S. S. R. . . . 2)	13,732	15,104	13,671	—	—	—	—	—	—	—	—	—	—	—
Canada . . .	544	584	562	93.1	96.8	—	—	—	—	—	96	—	—	—
United States . . .	3,411	3,371	3,097	101.2	110.1	—	—	76.6	—	—	81.6	—	—	74.3
Algeria . . .	31	24	25	127.3	122.0	—	100	—	—	100	—	—	—	75

(†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 507. — s) Early potatoes. — t) Late potatoes. — 1) Middle of preceding month. — 2) Area sown on 20th June 1932.

The crop in Italy is very promising and where already lifted is of good quality.

In Czechoslovakia good progress is recorded everywhere following on the rains at the end of July and beginning of August though the improvement in condition is not great.

Reports from Hungary are also favourable especially as regards late varieties which have developed regularly though the tubers are still somewhat small.

In Belgium a production lower than last year is everywhere expected; crop condition has improved since July.

There are good expectations in Lithuania following the favourable weather of July and in the Netherlands crop condition shows great improvement and an exceptionally luxuriant crop is expected.

Amongst the minor producing countries prospects are generally favourable save in Switzerland, where disease has caused heavy losses.

Production of potatoes.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1931 = 100	Average = 100
	Thousand centals			Thousand bushels			%	%
Germany 1)	61,789	65,196	61,299	102,980	108,658	102,163	94.8	100.8
Belgium	77,704	78,857	74,142	129,503	131,425	123,567	98.5	104.8
Bulgaria	1,819	1,720	946	3,031	2,866	1,576	105.8	192.4
Finland	20,426	15,997	17,419	34,042	26,661	29,030	127.7	117.3
Hungary	50,261	31,912	41,269	83,767	53,185	68,781	157.5	121.8
Luxemburg	4,057	4,700	3,652	6,761	7,832	6,086	86.3	111.1
Malta	564	670	636	941	1,117	1,060	84.2	88.7
Netherlands	71,298	60,322	72,753	118,827	100,535	121,253	118.2	98.0
Switzerland	14,720	16,447	14,971	24,533	27,410	24,952	89.5	98.3
United States.	220,200	225,311	213,920	367,000	375,518	356,526	97.7	102.9
Algeria.	1,102	949	918	1,837	1,582	1,530	116.2	120.0

1) early varieties.

For the small number of European countries for which the first estimates are already known the details are published in the appropriate table; production in these countries in 1932 should be 10 % greater than in 1931 and 5 % greater than the five-year average. The production of these countries represents, however only about 10 % of the European total excluding the Soviet Union.

In the United States, on the other hand, despite the increase in area cultivated, production this year will, according to the first estimates, be about 2 % less than in 1931.

* * *

Germany: The late crop suffered somewhat in some places, especially on heavy lands, from excessive moisture.

Austria: The early potato crop is backward but is fully developed in the lowlands and promises fairly satisfactory results. The tubers are rather small but healthy and sound. Late varieties are in many cases still in flower; foliage is luxuriant; owing to excessive humidity, however, phytophthora has appeared.

Belgium: Early varieties have given satisfactory yields.

Estonia : In 1931 the crop condition on 15 July was generally poor due to the drought but later rains improved growth so much that production was good though the estimate in summer had been small; the same conditions may be repeated this year so that it is too early to estimate production. On 1 July crop condition was 89.

France : The period from 15 July to 6 August was marked by frequent and often stormy rains alternating with hot sunny days and was generally favourable to the crop, which had a good appearance, and prospects would be good but for the damage, which it is not possible to evaluate exactly, caused by Colorado beetle in the Centre.

Great Britain and Northern Ireland : In England and Wales early potatoes were lifted in July in good condition, yields varying from moderate to satisfactory; the main crop was in most areas good and so far free from disease and an average yield was anticipated. In Northern Ireland the crop is expected to be exceptionally good; very little damage has been caused by blight.

Hungary : Early varieties, of which the crop has been average, are already on the market. Late varieties, which benefited greatly from the rains in July, show good progress, the tubers being numerous but frequently still small. Crop prospects are good and may still improve, given favourable weather.

Italy : In July growth was good and in some parts of the North harvesting of early varieties was begun and even completed, with good results.

Lithuania : Weather has favoured potatoes.

Luxemburg : In some districts the crop is threatened by *frisolée*.

Netherlands : Since the preceding month crop condition has improved and is considered good.

Poland : Weather in July was generally favourable and on 15 July crop condition was above average.

Sweden : In June and at the beginning of July the crop suffered from drought, but its condition afterwards improved with the abundant rains of the latter month. The crop was earthed up. In some areas insects caused damage and in certain cases the crop had to be replanted.

Switzerland : Crop condition is considerably less satisfactory than last month. Early and mid-season varieties were seriously attacked by disease due to the rainy weather. The crop will be much smaller than that of 1931.

Czechoslovakia : The prevalently rainy weather of July was generally favourable and a good crop is expected.

United States : Area in the early States is estimated to have decreased 11 % and in the intermediate States 1-2 %. That in the late States is about 4 % larger, the largest increases having occurred in a number of Central States where farmers decided to utilize a large part of their plentiful seed stocks.

Mexico : The crop suffered much from drought and frosts in June.

SUGAR

As in previous years we commence in August the publication of tables giving the weekly analyses in most of the leading sugar-beet producing countries. These analyses give the average weight of topped roots, the average weight of leaves and the average weight of sugar in the roots, with comparison of the data for 1931 and for the average of 1926-30 for the corresponding week.

In the majority of European sugar-beet producing countries and in the most important of them the weather in July was generally favourable to growth and to sugar formation. In Austria and Hungary, however, the situation was less satisfactory than elsewhere, due to the drought and the very great heat in the first fortnight of July, but the subsequent rains ameliorated crop condition, which may still profit by favourable conditions.

Acreage of Sugar Beet.

COUNTRIES	1932 (*)	1931	Average 1926 to 1930	% 1932	
				1931 = 100	Average = 100
	acres				%
Germany	562,348	786,002	1,039,694	71	54
Austria	107,500	106,000	69,381	101	155
Belgium	132,000	128,378	154,685	103	85
Bulgaria	29,650	29,650	46,387	100	64
Denmark	89,000	74,600	90,659	119	98
Spain	175,082	250,000	165,519	71	106
Irish Free State	13,100	5,012	14,246	258	91
Finland	6,200	4,990	5,281	124	117
France	617,200	602,526	632,999	102	97
England and Wales	255,000	233,219	220,258	109	116
Scotland	1	1	4	79	20
Hungary	112,600	137,536	173,060	82	65
Italy	207	287	253	72	82
Latvia	17,000	11,100	5,200	156	333
Netherlands	99,000	92,609	152,926	107	65
Poland	321,000	367,200	516,594	87	62
Rumania	50,000	37,000	157,702	133	31
Sweden	96,990	87,170	75,428	113	131
Switzerland	3,500	3,500	3,573	100	97
Czechoslovakia	368,360	460,871	636,664	80	58
Turkey	35,062	20,000	20,750	177	169
Yugoslavia	90,740	91,200	119,440	100	76
Total Europe a)	3,181,540	3,528,851	4,300,703	89	74
U. S. S. R.	4,038,000	3,400,700	1,867,749	119	216
Total Europe b)	7,219,540	6,929,551	6,168,452	103	116
Canada	47,000	51,000	47,670	93	99
United States	813,000	760,000	700,818	107	116
Total America	860,000	811,000	748,488	106	115
GENERAL TOTALS { a)	4,041,540	4,339,851	5,049,191	92	80
{ b)	8,079,540	7,740,551	6,916,940	103	116

*) Approximate data.

a) Not including the U. S. S. R. — b) Including the U. S. S. R. — 1) Average 1929 and 1930.

In Germany from the beginning of July to the beginning of August the weather was variable, with, in general, small precipitation and high temperatures, in the first fortnight of July, during which the beets suffered somewhat from drought, notably in the centre and north. The second fortnight was on the

1932-33 Campaign. — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1932	1931	1926 1930	1932	1931	1926 1930	1932	1931	1926 1930	1932	1931	1926 1930
	oz.	oz.	oz.	oz.	oz.	oz.	%	%	%	oz.	oz.	oz.
1st WEEK OF JULY.												
Belgium	0.7	—	1) 2.0	4.2	—	1) 9.0	6.4	—	1) 6.7	0.03	—	1) 0.1
3rd WEEK OF JULY.												
Belgium	4.0	4.7	1) 4.4	16.0	12.6	1) 13.2	7.8	10.1	1) 9.3	0.3	0.5	1) 0.4
4th WEEK OF JULY.												
Germany	6.5	5.5	2) 5.1	16.0	14.8	2) 12.0	10.9	10.4	2) 12.2	0.7	0.6	2) 0.6
LAST WEEK OF JULY.												
France	5.5	—	3) 7.1	14.9	—	3) 17.4	11.0	—	3) 12.4	0.6	—	3) 0.9
Czechoslovakia . .	8.9	9.3	4) 7.7	17.5	14.4	4) 11.1	12.3	13.5	4) 14.3	1.1	1.3	4) 1.1
1st WEEK OF AUGUST.												
Germany	8.1	8.5	7.3	16.8	17.0	13.5	12.3	13.8	12.2	1.0	1.2	0.9
Belgium	7.6	13.4	2) 8.3	24.2	21.5	2) 21.4	11.0	12.5	2) 11.6	0.8	0.6	2) 0.9
France	8.1	7.8	—	16.9	16.2	—	12.5	11.9	—	1.0	0.9	—
Czechoslovakia . .	10.4	11.2	8.5	18.2	15.0	12.8	12.9	14.3	13.9	1.3	1.6	1.2
2nd WEEK OF AUGUST.												
Germany	10.1	9.6	8.7	18.6	16.1	13.7	13.1	14.4	13.6	1.3	1.4	1.2
France	9.8	10.5	8.0	18.9	18.9	2) 16.9	12.0	11.7	13.2	1.2	1.5	1.1
Czechoslovakia . .	11.9	12.6	9.9	18.3	15.1	13.4	13.6	15.0	14.4	1.6	1.9	1.5
3rd WEEK OF AUGUST.												
Germany	11.4	11.3	10.6	17.7	16.1	18.0	14.4	14.9	14.0	1.6	1.7	1.4
France	12.6	12.2	10.1	18.2	20.7	15.6	12.0	13.3	14.1	1.6	1.6	1.5

1) Average 1927 and 1930. — 2) Average 1927 to 1930. — 3) Average 1929 and 1930. — 4) Average 1928 to 1930.

other hand cooler and rainier and benefited crops. In the first days of August the weather remained changeable, at one time fine, at another bad, with great differences between day and night temperatures; there were frequent storms and drier weather was wanted; on the whole the roots made good progress and crop condition was very good. The analyses of the third week of August also indicate a weight of root greater than that of last year and the five-year

mean; sugar content is good and though somewhat below that of last year is much above the average.

In France the weather in the first fortnight of August was very good, being sunny and dry, and a crop above that of last year and the average is expected; the sugar content is satisfactory, being a little less than that of last year at the same date but appreciably above the mean.

In Czechoslovakia the rains in July were beneficial especially in Bohemia where crop condition was very good; sugar content is satisfactory and a good production is expected

In Poland the crop was rather backward and had suffered from the weather conditions of June but the warm wet weather of July improved condition and, even if the latter is not so good as in the previously mentioned countries, it is satisfactory; weight of roots is a little below average.

In Great Britain crop condition is average but a production above that of last year is expected consequent on the increased area cultivated.

In Italy weather has been very propitious and a crop large in relation to the restricted area cultivated is expected.

In Spain the rains of July were very favourable to growth of beet, which, except in certain southern provinces, was in very good condition.

In the other European countries as a whole crop condition had also improved in July and relatively to the area sown a good production was expected.

In the U. S. S. R. appearance of the crop was rather variable due to the long period over which sowings were spread and crops are generally backward. On the whole, it would seem that crop condition is not very good.

According to a factory estimate production of beet in the United States will be about 4 % greater than in 1931.

As regards the 1931-32 season it is announced by the Sugar Export Corporation that all mills in Cuba have terminated operations and that the quantity of sugar produced is about 5 % below the 60,600,000 centals (3,031,000 short tons) established under the Chadbourne plan. In Java on the other hand the Association of Java Sugar Manufacturers estimates a crop larger than in 1931-32 and, not including the production of mills not belonging to the Association, amounting to 60,600,000 centals (3,031,000 short tons) against the 54,000,000 (2,700,000) previously estimated. This figure should, however, be accepted with reserve pending confirmation.

* * *

Germany : Crop condition was favourable.

Austria : Growth is still backward; leafage is at present well developed but growth of the roots is still slow.

Belgium : Development is good.

France : The frequent rains of the latter half of July improved crop condition, which had begun to suffer from the lack of moisture in the north; at the beginning

of August insect damage appeared to be diminishing. Private estimates gave a probable production of 18,200,000 centals (910,000 short tons) to 18,400,000 centals (920,000 short tons), which would make this year's crop very good and 4 ½ million centals (200,000 short tons) above that of last year and the average, and excelled only by the record crop of 1930. Forecasts appear very optimistic however and on the basis of the analyses of this year and the last two years the crop should be at least 2 million centals (100,000 short tons) less.

Sugar-beet.

COUNTRIES	CROP CONDITION (†)								
	1 August 1932			1 July 1932			1 August 1931		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany	2.5	—	—	2.9	—	—	2.6	—	—
Austria	2.5	—	—	2.7	—	—	—	3.0	—
Bulgaria	—	—	95	—	—	95	120	—	—
Denmark	—	100	—	—	—	96	—	—	94
Scotland	—	100	—	—	—	—	—	—	90
Hungary	2.7	—	—	2.8	—	—	—	—	—
Netherlands 1)	70	—	—	—	—	61	—	66	—
Sweden 1)	110	—	—	—	—	—	103	—	—
Czechoslovakia	2.3	—	—	2.6	—	—	2.7	—	—

(†) For the explanation of signs and figures indicating crop condition see cereals table and note on page 507. —
1) Middle of preceding month.

Great Britain and Northern Ireland: Reports on the condition of beet indicate that the yield will be about average but in view of the increased acreage the total production should be considerably greater than in 1931-32. The warm sunny weather of June and the first half of July was followed in the latter half of July by showery and cooler conditions.

Hungary: Consequent on the great heat and drought at the beginning of July, the crop shows comparatively small progress though rains improved its condition. The yield forecasts at the beginning of August were below average but abundant rains may still considerably increase the first crop estimate.

Production of raw sugar this season is estimated at 5,390,000 centals (269,000 short tons) a decrease of 35.0 % on that of 1931-32, 8,267,000 centals (413,000 short tons) and a decrease of 35.5 % on the average of the five years ending 1930-31, 8,241,000 centals (412,100 short tons).

Italy: Crop condition in July was good, permitting a large beet production to be expected.

Netherlands: Growth conditions are good.

Poland: July was prevalently hot and dry. Heart rot has appeared, particularly in province Warszawa and Poznan.

Sweden: Owing to the prolonged drought in June and up to the first days of July growth was rather irregular; after the beneficial rains of mid-July however yields somewhat above the average could be expected.

Switzerland : Apart from the lack of abundant precipitation, which in the lower districts has had a somewhat disadvantageous effect, weather has been on the whole favourable, though a continuance of fine weather is still desirable. Parasites are reported in only isolated cases.

The first estimate of raw sugar production this season gives 141,000 centals (7,060 short tons) against 132,000 (6,600) in 1931-32 and 148,500 (7,420), the five-year average; percentages 106.7 and 95.0.

Czechoslovakia : According to the first forecasts the beet crop will be good.

Barbados : The growing cane is well advanced and if weather continues favourable during the remainder of the season there should be another bumper crop in 1932-33.

United States : Area under sugar-cane for sugar is estimated at 179,000 acres against 148,000 last year, an increase of 20.9 %, and 124,000 on the average of 1926-1930, an increase of 44.2 %.

The major increases in sugar-beet area have occurred in Ohio and Michigan where the 1931 acreage was very small. A considerable decrease has taken place in the Great Plains area.

Guadeloupe : The weather in June favoured cutting and transport, which were completed in the first part of July.

Formosa : The weather was generally favourable to the sugar-cane planted from last summer to this spring, when growth was good.

Production of Sugar-beet.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1931 = 100	Average = 100
	Thousand centals			Thousand short tons			%	
Bulgaria	5,291	4,189	6,001	265	209	300	126.3	88.2
Hungary	19,458	21,301	32,654	973	1,065	1,633	91.3	59.6
Italy	45,195	52,263	57,967	2,260	2,613	2,898	86.5	78.0
Netherlands	29,529	22,690	45,961	1,476	1,134	2,298	130.1	64.2
Switzerland	1,036	1,036	1,056	52	52	53	100.0	98.1

India : In the United Provinces and Central Provinces irrigation was continued in July. In Bombay the crop on the Deccan canals was reported to be in good condition in the first part of the month, and favourable reports come from Orissa and Chota Nagpur in the first part of August. In Punjab cane has been damaged by floods in the Gurdaspur district.

French Indo-China : The crop in Annam has been diminished by drought.

Union of South Africa : Crop condition in June was 13 % below normal. Weather was generally dry in the sugar belt but the Empangeni district received about 2 ½ inches precipitation during the month. Production of sugar is estimated at 7,200,000 centals (360,000 short tons), a decrease of 8 % on that of last year, 7,860,000 (393,000).

VINES

The most notable feature since mid-July has been the spread of mildew, favoured by the frequent heavy rains, which have in themselves caused local damage. *Peronospora* has spread in all the southern vineyards of France, increasing the losses caused in the preceding period; it appeared in the northern vineyards of Spain and of Italy, in Portugal and in all the Central European and Danubian vine-growing areas; for Greece and Yugoslavia, however, information is lacking. In France the vineyards of the Loire, of the Centre and East, the majority of those of Spain and Italy and those of North Africa remained, however, in mid-August, nearly free of mildew if not in all cases of oïdium, vine moth and eudemis, which appear rather formidable this year. Fruit formation has in the greater part of these areas been abundant and conditions in July and the first half of August were very favourable to vegetation and to development of the grapes and, in the more southern areas, to colouring and ripening.

Vines.

COUNTRIES	AREA					CROP CONDITION (†)								
	1932	1931	Average 1926 to 1930	% 1932										
				1931 = 100	Aver. = 100	1-VIII-1932			1-VII-1932			1-VIII-1931		
						1,000 acres								
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany . . . . .	...	204	201	...	...	2.6	—	—	2.3	—	—	1.9	—	—
Austria s) . . . . .	...	73	80	...	...	1.8	—	—	1.8	—	—	1.7	—	—
Bulgaria	222	217	199	102.3	111.7	140	—	—	140	—	—	150	—	—
Spain . . . . .	...	...	...	...	...	—	—	—	—	—	—	—	—	—
France	4,006	3,971	3,749	100.9	106.9	—	—	—	—	—	—	—	—	—
Luxemburg	3	3	3	112.9	89.4	—	—	3.1	2.8	—	—	2.3	—	—
Switzerland . . . . .	...	33	35	...	...	—	—	87	101	—	—	—	—	95
Czechoslovakia	47	45	42	105.3	111.3	—	—	—	—	—	—	—	—	—
Syria and Lebanon	127	125	108	101.8	117.7	—	—	—	e)	—	—	—	—	—
Algeria s)	773	771	595	100.2	127.8	...	...	...	—	100	—	—	100	—
Tunis . . . . .	...	122	80	...	...	—	—	—	120	—	—	—	100	—

(†) For the explanation of signs and figures indicating crop condition, see Cereals table and note on page 507. — s) Area bearing. — b) Total area. — (1) Average 1926, 1928 and 1929.

Despite, therefore, the losses due to cryptogamic diseases and insects in certain important areas, the general appearance of the vines on 15 August permitted hopes of a good average crop to be entertained. The warm dry weather that set in toward the beginning of the second half of August appeared at least in the Mediterranean area to have checked mildew; on the other hand fears regarding insects were still entertained though the damage from this cause cannot be so great as that from cryptogams.

The situation on the wine market has undergone no substantial modification in the principal producing countries since last month. Firmness has been the

dominant note for it is increasingly clear that in the leading viticultural countries even in Central Europe, the movement of the 1931 crop is practically assured from now until the end of a season that will be rather more prolonged than usual. Firmness is shown even on the markets of Central Europe and in some Danubian lands though in the majority of these countries prices remain weak. It affects principally quality vines. Business has shown some animation in Spain and in the south of France but on the whole the resistance of the growers has caused the majority of markets to be quiet; the trade is adopting a hand-to-mouth policy. An export movement has begun from Spain and also, but to a less marked degree, from Italy, toward France but this movement remains for the future subordinate to legislative measures for "de-segregating" the quantities imported into France during the current season and to the eventual segregation of the coming crop; the provisional segregation of the latter has been decreed until total future production is exactly determined.

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* * *

Germany : Since the weather has not been very favourable crop condition is not so good as last month. Flowering and grape-formation suffered from the frequent showers. Almost everywhere appreciable damage has been caused by vine moth, mildew and oïdium, which have not received the necessary treatment owing to the bad weather.

Austria : Development of the fruit is promising, especially of table grapes, which are well-filled. Foliage is healthy. Early vines are beginning to ripen. Hail has caused considerable though localized damage.

Bulgaria : Weather in June and July was favourable and mildew was practically absent, so that the vintage this year will probably be abundant. The torrential rains and hail toward the end of the month, however, caused considerable damage. Production of grapes is estimated at 9,943,000 centals, almost the same as last year. Production of wine is estimated at 57,722,000, Imp.-gall. (69,318,000 Amer. gall.), against 61,769,000 (74,179,000) in 1931 and 35,007,000 (42,041,000) in 1926-30; percentages 93.4 and 164.9.

Spain : In July beneficial rains fell in the vine area as a whole; in the northern areas - Aragon and Rioja - they caused rather serious damage, considerable dropping occurring and a severe attack of mildew, and production has been very appreciably reduced. In the other areas appearance is good to very good save in some areas where hail and phylloxera have been experienced.

Pyrallis has ceased to be troublesome. On the whole the crop thus appears to be good and rather above the average, apart from possible cryptogamic damage in August and September.

Toward the end of July and in the first decade of August mildew spread to some of the southeastern provinces of New Castile; rain and hail led in some other areas to a reduction on the first estimates.

The market has been sustained and prices are firm with a rising tendency, stimulated by the influence of the markets in the South of France and by the quantity of stocks, which are just sufficient to meet consumption up to the coming on the market of the new crop.

France : The period from mid-July to the end of the first week in August was not favourable to the crop in any area. Mildew is general ; in the South, with the fall of infected fruit, mildew has almost disappeared from the fruit but the infection is spreading on the leaves and has made progress in areas so far free. The stormy rains that followed at brief intervals during this period, caused serious attacks of grey rot in the valley of the Garonne and in the Bordelais, where shedding has been very prevalent. Repeated sulphur treatment has made difficult the supply of sufficient cupric solution in the southern areas. The vineyards in these areas are rank with weeds since the bad weather has prevented cultivation.

In the other vineyards also — Loire valley, Burgundy, Champagne, Alsace and Lorraine — mildew has appeared ; damage is not yet, however, serious. On the other hand the first generation of vine moth is exceptionally numerous and has caused considerable loss, especially in Champagne ; in other areas the abundance of fruit permits hopes of an appreciable quantity of grapes, though the second generation of moth is even more numerous than the first.

On the whole, therefore, the situation has worsened since last month and it seems quite likely that the figure of 1,100 million Imperial gallons (1,300 million American gallons) will not be exceeded.

The wine market experienced a further rise in the third week of July but toward the end of the month there was a return of uncertainty and a fall in prices, which was, however, fairly quickly arrested ; at the beginning of August firmness prevailed. Rather large quantities have been imported from Spain in hopes that the quantities segregated in the current season will soon be liberated ; on this hypothesis these stocks will bring a fresh burden on the market and hinder movement of the remaining portion of the French crop, which would appear otherwise to have a fairly easy absorption. It seems likely that there did not remain in the hands of growers at the end of June more than 395 (475) to 475 (500) million gallons to meet total consumption, taxed and free, which should attain of least 339 (400) million gallons in the last three months of the season ; trade stocks at the end of June were normal.

Toward the end of the first week of August fine dry and warm weather again prevailed in the South and should have allowed the delay in colouring of the grapes to be to some extent made up ; on the hillsides this stage was just beginning. According to private estimates the crop in the four principal southern producing departments should be rather larger than that of 1930, attaining possibly 440 million Imperial gallons (530 million American gallons), which would on the whole substantiate a crop larger than the disastrous one of 1930, the maximum estimate this year being 1,000 (1,300) million.

In the second half of August the weather was very hot and dry.

Hungary : The warm rainy weather has generally favoured growth. In certain areas peronospora is reported and hail has caused local damage. The final operations are in progress.

Italy : The copious rains in July stimulated mildew in the North and Centre but the attack was confined to young shoots and leaves and did not cause serious damage to grapes ; it was arrested by the dry warm weather and north winds at the beginning of August. Given the abundance of the crop it seems that the losses caused leave a good production. In the South appearance of vineyards, which are free of disease, is very good. On the whole a crop certainly above the average is expected.

The first table grapes came on southern markets toward the end of July ; they are of good quality and production is satisfactory.

Markets were quiet in July ; prices fell in the large producing areas of the South, while in other areas, where supplies were almost entirely moved, they were maintained.

Luxemburg : The abundant rains of July favoured development of cryptogams.

Portugal : Very extensive mildew and oidium attacks have brought a decrease in crop forecasts ; in certain areas a considerable decrease is already certain.

Rumania : At the beginning of June crop condition throughout the country was most promising. The winter caused relatively small losses and the weather in spring was propitious to growth. Subsequently, however, the vines in many parts of Bessarabia and the Old Kingdom were attacked by mildew, the spread of which was favoured by the rains in the latter part of July and by the insufficiency of preventive measures. Consequently the production of wine this year will not be up to the first expectations and it may be taken for granted that it will be below that of last year. These circumstances have induced an appreciable rise of prices.

Switzerland : Vines suffered severely from the inclement weather in July. The persistent showers favoured cryptogamic diseases. The relatively low temperatures also hindered growth. Generally, if the weather improves, a passable crop may, however, be counted upon.

United States : Grape production is estimated at 42,849,000 centals (2,142,000 short tons) against 32,437,000 (1,622,000) in 1931, an increase of 32.1 %, and 48,933,000 (2,447,000) on the average of 1926-30, a decrease of 12.4 %. The Californian crop is expected to be about 41 % larger than that of last year. In some sections of the country grapes were injured by the spring freezes but for the most part good crops are in prospect in the important States. In California the crop recovered from the late frosts was better than at first anticipated.

Palestine : The vintage has commenced. Table grapes are ripening in Gaza, Jaffa and Haifa subdistricts. In Hebron the grapes are about ripe. Generally speaking the crops are good.

Syria and Lebanon : In Latakia weather has not been favourable to growth and in some areas a deficit is expected, the crop being likely to be no more than two-thirds of normal.

Algeria : In the last days of July rather serious losses through oidium were reported from some vineyards. The third flight of eudemis was fairly large but countermeasures were carefully carried out. The fruit look on colour under good conditions. The vintage was expected to begin about 20 August.

The production of chasselas and table grapes is satisfactory; export to France is active.

July was normal; the scirocco did not cause damage. The crop appears to be good in both quantity and quality, cryptogamic diseases not having caused appreciable losses.

French Morocco : Growth has been vigorous and the vines have remained exempt from cryptogamic disease. Appearance of the vineyards at the middle of July promised a good crop.

Tunisia : Weather has favoured the crop, which at the beginning of August was free from cryptogamic diseases and was in good condition (120).

The area in bearing in 1932 is not yet known but, on the basis of the very regular development of recent years may be estimated at about 99,000 acres. The

appearance of the vines at the beginning of August gave grounds for expecting a record crop of 33.0 million Imp. gall. (39.6 million Amer. gall.) double that of last year, which was 15.4 (18.5) million and very much above the five-year average, which was 19.3 (23.1) millions.

Australia: According to private information following the vintage production will be about 15.5 million Imp. gall. (18 million Amer. gall.) or even more; it will thus be somewhere between the small crop of 13 (16) million gallons obtained last year and the average of the last five years, 18 (21) million gallons. Production this year, even on the most unfavourable hypothesis, will be sufficient to meet the needs of both internal and external consumption, despite the growth of exports to Great Britain, the total of these for the season from 1 July 1931 to 30 June 1932 having been about 3.5 (4.2) million gallons, but the increase of about 1.2 (1.3) million gallons on last year's export will be quite inadequate to compensate for the decrease in internal consumption, which fell from 15.5 (18) million gallons in previous years to under 13 (16) million in 1931.

The season has been unfavourable to drying of raisins, of which production is rather mediocre in New South Wales.

Quality of wines in general leaves much to be desired.

OLIVES

Information from the various oil-producing countries indicates that flowering and fruit-formation generally occurred under favourable conditions and permits a normal and in some cases abundant crop to be expected. The weather has been especially propitious in Spain where heavy rains and good insolation favoured the trees, which have a healthy and exuberant appearance, especially in some provinces of major importance such as Lerida, Jaén, Cordoba and Seville; in these areas flowering was excellent, fruit-formation was normal and disease is slight and of small extension. In Italy the situation is promising and in Puglie, as in Tuscany, Calabria, Sicily and Lazio growth and crop prospects are on the whole good; only in certain areas has setting been in some cases reduced by unfavourable weather, while in some other areas falling has occurred, though not to any considerable extent; only a few cases of disease have so far been encountered. In Greece crop prospects are satisfactory. In Portugal the beginning of the season was very favourable but, consequent on lack of precipitation at the proper period, growth was checked; it is estimated however that for the country as a whole the crop will not be very far from normal.

In the Asiatic countries the situation varies, being good in Syria and Lebanon, where weather has been propitious, very mediocre, if not bad, in Palestine, where weather was unfavourable up to the beginning of the season and a very poor crop perhaps even more so than that of last year is expected.

As regards French North Africa forecasts are good in Algeria, where fruit-formation took place under fairly favourable conditions; in Tunisia, due to the possible exhaustion of certain groves following very large crop of 1931, flowering has been restricted and production will be small in the south but the situation is good in the north and centre and on the whole an approximately normal crop is expected.

The leading markets are quiet and rather weak, with a slight declining tendency. In Italy demand for internal consumption and for export is extremely small; fine qualities and bright types show a contraction. The smallness of stocks, however, gives hopes of a certain recovery in the period intervening before harvest. In France also, especially as regards bright types, quotations show a tendency to fall and in Spain business is slack, especially in lower qualities.

* * *

Italy : The crop is vigorous.

Portugal : Flowering is regular but hot dry winds have caused considerable damage to the fruit. In some areas where a good crop had been expected, results now appear likely to be poor.

Palestine : The olive crop is most disappointing and the yield cannot be estimated at more than 15 % of normal.

Syria and Lebanon : Weather has been fairly favourable to growth and crop condition in July, as in June 1932 and July 1931, was good.

Algeria : Conditions in July were on the whole favourable and fruit formation was good. A rather severe attack of *fumagine* caused by *Cochenillae* is reported in some areas.

Tunisia : Conditions so far have favoured the crop, of which the appearance at the beginning of August gave grounds for expecting a fairly good production of 694,000 centals (9,126,000 Amer-galls) of oil, which is, however, only 84.7 % of the five-year average of 820,000 (10,777,000) and 63.0 % of the good crop of last year, which amounted to 1,102,000 (14,485,000).

COTTON

The first estimate of the Department of Agriculture at Washington of the coming cotton crop of the United States has, as last year, surprised the market. While private estimates had been based on a crop condition at 1 August between 67.2 and 68.5, the Government reported a condition of 65.6 against 79.9 last year and the ten-year average of 66.4. Consequently most of the non-official estimates are much higher than the 54,043,000 centals (11,306,000 bales) of lint forecast by the Government, which is 34 % less than the production of last year and 24 % less than the average of the five years ending 1930-31. Deducting from the area cultivated on 1 July the ten-year coefficient of abandonment, the area to be harvested was estimated on 1 August at 36,161,000 acres, giving a yield of 149.6 pounds of lint per acre against 201.2 last year. The Government declares that crop prospects this year are more uncertain than usual since boll-weevil is much more widespread than in any other year since the great invasion of 1928. The infestation is general throughout the Cotton Belt and is especially severe in the Delta (Louisiana and Mississippi). In other areas and especially in Texas a period of dry hot weather has improved prospects and seems to have diminished boll-weevil damage but shedding, induced by the high temperatures, seems to be serious. Crop condition this year is lower than last year in all States, due also to the great decrease in the use of fertilizers in the last two years.

The market has become distinctly bullish since the publication of the report and prices are much better than previously. There are, however, many other factors at present influencing prices in a bullish direction having nothing directly to do with cotton, of which the purely statistical position is in fact no better than last year.

Cotton

COUNTRIES	AREA SOWN					CROP CONDITION †)													
	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932-33															
				1931/32 = 100	Aver. = 100	I-VIII-1932			I-VII-1932			I-VIII-1931							
						a)	b)	c)	a)	b)	c)	a)	b)	c)					
Thousand acres																			
Bulgaria	30	13	12	226.5	244.7	150	—	—	150	—	—	125	—	—					
U. S. S. R.	5,787	5,346	2,480	108.2	233.3	—	—	—	—	—	—	—	—	—					
United States . . .	1) 36,161	2) 40,693	2) 44,690	88.9	80.9	—	—	65.6	—	—	—	74.9	—	—					
Mexico	156	319	465	48.8	33.5	—	—	—	—	—	—	—	—	—					
India	13,485	13,938	15,161	96.7	88.9	—	—	—	—	—	—	—	—	—					
Algeria	1	3	14	26.9	6.1	—	—	80	—	—	—	—	—	—					75
Egypt	1,135	1,747	1,861	65.0	61.0	—	—	—	—	—	—	—	—	—					

†) For the explanation of signs and figures indicating crop condition, see Cereals table and note on page 507 —
1) Acreage estimate as on 1 August. — 2) Acreage picked.

The Government of India has published the first estimate for the season, a decrease of 3.3 % in area cultivated with respect to that of last year and of 11.1 % with respect to the average of the five years ending 1930-31 having occurred. This estimate relates to the area sown up to the end of July and beginning of August and includes only about three-quarters of the total.

On 1 August the Egyptian Ministry of Agriculture published a table giving details of area under each variety cultivated during the present season with corresponding figures for last year as summarized below. All varieties show a decrease except Sakha 4 and Giza 3 but in these cases the increase is not of great importance. The heaviest declines are in Sakellaris, Maarad and Pilon. The market has risen in sympathy with that of the United States.

The Mexican Government has announced a decrease of 51% in area cultivated this season with respect to last year and of 67 % with respect to the five-year average; production is 58 % below that of last year and 65 % below the average.

In a number of countries where cotton production was developed as a consequence of war conditions it seems that it is tending to disappear or to be severely restricted.

I. S.

* * *

Italy : Due to drought crop condition is rather bad.

United States : On 11 August shedding was reported to be increasing in the western section of the belt due to scanty rain, while in the eastern section weevils were active due to excess of rain, but on 17 August progress was reported fairly satisfactory.

Production is estimated at 54,043,000 centals (11,306,000 bales) against 81,719,000 (17,096,000) in 1931, a decrease of 33.9 %, and 70,904,000 (14,834,000) on the average of 1925-30, a decrease of 23.8 %. The quantity of cotton, not including linters, ginned from the 1932-33 crop to close of business on 31 July amounted to 70,978 running bales (counting round bales as half-bales), against 7,301 in 1931, 78,188 in 1930, 86,974 in 1929, 88,761 in 1928 and 162,283 in 1927.

Mexico : Production of lint in 1932-33 is estimated at 416,000 centals (87,000 bales) against 989,000 (207,000) in 1931-32 and 1,186,000 (248,000) on the average of the five years ending 1930-31 ; percentages 42 and 35. This very considerable decrease is due particularly to the heavy fall in area consequent on low prices and unfavourable weather.

St. Vincent, Windward Islands : The Sea Island cotton season terminated on 1 May. No cotton will be planted before 1 September. Insect and fungus pests in the past season were normal. The 1931-32 crop is estimated at about 206,200 lb. at the rate of 114 lb. per acre.

India : The first estimate of area sown in the Punjab for 1932-33 is 1,955,000 acres against the corresponding estimate of 2,141,000 in 1931-32 and the average, of 2,322,000 for the five years ending 1930-31, a decrease of 8.7 % and 15.8 % respectively. Planting began at the normal date. The crop is reported to have been affected by tela in Multan. On 10 August crop condition in the Punjab as a whole was reported as 94 % of normal.

In Madras the first estimate gives an area of 210,600 acres for 1932-33 against the corresponding estimate of 196,000 in 1931-32 and the five-year mean of 221,200, an increase of 7.4 % with respect to the first figure and a decrease of 4.8 % with respect to the latter. Of this year's total 65 % represents second pickings from 1931-32 sowings in the South.

In Bombay heavy rain in July damaged the crop in Surat and Broach ; but in Sind early-sown cotton was reported toward the end of July to be in good condition.

In the Central Provinces weeding was retarded by the continuous rain and some slight damage was reported in Berar and Nagpur.

French Indo-China : The crop has on the whole been somewhat deficitary in Cambodia owing to the drought.

Egypt : July temperatures were favourable. Flowering was rather later than last year. Insect damage is still insignificant. Irrigation water is generally adequate.

According to the official estimates the area cultivated to cotton in 1932-33 is as follows, the data for preceding years being given for comparison:

	1932-33	1931-32	1930-31	1929-30	1928-29
	Thousand acres				
Sakellaridis	383	497	869	880	830
Ashmuni and Zagora . . .	526	788	972	835	798
Other varieties	226	463	321	197	177
Total . . .	<u>1,135</u>	<u>1,747</u>	<u>2,162</u>	<u>1,912</u>	<u>1,805</u>

Tanganyika : In Mwanza the crop was reported in June as suffering badly from jassid in places and from shedding of young bolls but prospects were still good. In Morogoro, however, the early-planted crop was doing well, reports from Kilosa and Rufiji were also satisfactory.

Uganda : In the Eastern Province the general lack of rain in June retarded planting save in Teso. Increased planting is, however, expected in July.

In Buganda Province there was also on the whole a delay in planting due to drought. In the Northern Province the drought made necessary a considerable amount of resowing, June-sown cotton having germinated poorly though May-sown stood the drought well.

The areas planted up to the end of June were as follows (in comparison with those to the same date last year (acres):

	1932-33	1931-32
Eastern Province	114,356	99,223
Buganda	60,648	55,090
Northern Province, Lango District . . .	16,888	6,186

Final returns of purchases of seed cotton for the 1931-32 season give a total equivalent to 4,368,000 centals (914,000 bales) of lint. Shipments from 1 January to 25 June amounted to 653,300 centals (136,700 bales).

Union of South Africa : Production of lint is now estimated at 14,300 centals (3,000 bales), 45 % of that of 1930-31, which was 31,800 (6,700) and 33 % of the mean for the five years ending 1929-30, 43,200 (9,050).

Owing to the low price, however, only the better grades can be ginned so that actual ginnings will no doubt be considerably lower than the above estimate based on production of unginned cotton.

FLAX

Fibre. — In the ten European flax-growing countries indicated in the table for which data of area sown for fibre are known and which account for half of the total European flax area it is known that this season also will show an almost general reduction, accentuating the tendency already apparent for several years. Exception must be made of Finland, which shows an increase of 1,200 acres but where the crop is of small importance and where the data for area include also hemp, and of Poland, a country of great importance, where the area has remained practically the same as last year.

For the ten countries under consideration it may be estimated that the total area under flax is 460,000 acres against 546,000 in 1931 and about 803,000 on the average for 1926-30, a reduction of 16 % and 43 % respectively. Particularly significant are the reductions in the Western European group, which have occurred in the Netherlands, Belgium, France and Northern Ireland.

Information from non-official sources indicates that the area cultivated has undergone more or less notable declines in other European countries, including Estonia, Latvia and Great Britain, for which statistical data are not yet officially known.

As regards the situation in the U. S. S. R. the most recent information indicates that the plan for this year, which laid down an increase on the 1931 area, has already been almost fulfilled; in this case the increase of 500,000 acres would largely compensate for the expected reduction in the European countries.

The first estimates of fibre production in Belgium, Bulgaria and the Netherlands give average unit yields; in the Baltic countries weather was on the

whole fairly favourable in the first half of July; in other countries, including Austria and Hungary, unit yields; are mediocre to average; on the whole, considering the marked decrease in area, European production of fibre (excluding that of the U. S. S. R.) will be less than in 1931 and much less than the 1926-30 average.

Flax.

COUNTRIES	AREA SOWN					CROP CONDITION †)								
	1932	1931	Average 1926 to 1930	% 1932		I-VIII-1932			I-VII-1932			I-VIII-1931		
	1,000 acres			1931	Aver = 100 = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria . . . . .	...	8 1)	10	...	...	2.6	—	—	2.6	—	—	2.8	—	—
Belgium	21	36	59	57.9	35.5	—	—	—	e)	—	—	—	—	—
Bulgaria	2	2	1	98.3	281.1	150	—	—	150	—	—	120	—	—
Estonia . . . . .	...	45	83	...	...	—	—	90	—	—	—	—	—	1)93
Finland 2).	11	10	11	112.5	101.5	—	—	—	—	—	—	—	—	—
France	25	37	79	68.7	32.1	—	—	—	—	—	—	—	—	—
Northern Ireland .	6	7	31	81.9	19.5	—	—	—	—	—	—	—	—	—
Italy	22	24	38	89.2	56.3	—	—	—	—	—	—	—	—	—
Lithuania	99	139 2)	212	71.5	46.7	—	—	97	—	—	97	103	—	—
Netherlands	5	16	37	29.9	13.1	3)67	—	—	3)66	—	—	—	—	3) 59
Poland	252	252	283	99.9	89.0	—	—	—	—	—	—	—	—	—
Czechoslovakia . .	20	23	46	87.7	43.5	—	—	—	—	—	—	—	—	—
U. S. S. R.	4) 7,347	7,574	4,528	—	—	—	—	—	—	—	—	—	—	—
Canada	454	627	511	72.4	88.8	—	—	79	—	—	92	—	—	44
United States . . .	2,667	2,325	3,040	114.7	87.7	—	—	61.3	—	—	76.4	—	—	43.2
India	3,241	3,008	3,224	107.7	100.5	—	—	—	—	—	—	—	—	—
French Morocco . .	61	89	50	68.6	122.4	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 507. — 1) Average 1927 to 1930. — 2) Flax and hemp. — 3) Middle of preceding month. — 4) Area sown as at 20th June 1932.

Seed. — The provisional estimates for the United States and Canada, which together account for about half the production in the northern hemisphere and almost one-sixth of world production, indicate a crop for the two countries of 10.6 million centals (18.9 million of bushels) against 7.7 (13.8) million in 1931 and 13.9 (24.8) on the average of 1926-30.

A report of the Ministry of Agriculture confirms the reduction in the flax area of Argentina; sowings had been regularly carried out and were almost terminated. Germination was generally good but crop condition in Entre Rios deteriorated in the first half of August consequent on excessive rains and the attacks of locusts.

* * *

Austria: The fibre crop, though still fairly good, has suffered frequent damage from heavy rains, which caused laying. There are everywhere complaints of weeds.

Great Britain and Northern Ireland: Though the area under flax is comparatively small the crop looks fairly well and the yield should be average. In some areas development was retarded by charlock but after spraying satisfactory progress was made.

Hungary : Yields are average. At the beginning of August the crop had been brought in.

Italy : Development in July was normal.

Latvia : Crop condition on 15 July was average according to 46.7 % of correspondents' replies, above average according to 10.6 % and below average according to 42.7 %.

Netherlands : In some places the stems are very short.

Argentina : Weather up to the second decade of July was very favourable. Area is confirmed to be below that of last year due to low prices.

United States : The increased area this year is due largely to increases in the Dakotas and Montana, where the area harvested in 1931 was greatly reduced by drought.

HEMP

Hungary : At the beginning of August harvesting and setting was in progress. Yields and quality are good.

Italy : Crop condition in July was average to good.

Area this year is 128,600 acres, a decrease of 5.7 % on that of last year (136,300 acres) and a decrease of 42.4 % on the average of the five years ending 1930 (223,100 acres).

Poland : According to the first estimate the area sown this year is the same as last year (76,400 acres) and practically the same as the 1926-30 average (75,700).

HOPS

Belgium : Development is good.

Great Britain and Northern Ireland : The mild showery weather of July favoured growth and vines made good progress. Attacks of downy mildew and aphids have, however, been persistent and it is anticipated that the yield will be well below average. The 1932 area is estimated at 16,600 acres a decrease of 13 % on that of last year and of 27 % on the mean for 1926-30.

Hungary : At the beginning of August ripening was well advanced and picking had begun. Storms have caused damage.

Czechoslovakia : The rainy weather has favoured spread of aphids, which has caused severe damage. Growth is unequal.

TOBACCO

Belgium : Growth is satisfactory.

Greece : The heavy reduction (20-30 % with respect to last year), in the area cultivated and the rather unfavourable weather in June and July lead to the expectation of a crop 30 % below that of last year.

Hungary : The rains in July greatly improved the crop. Leaves are sound.

Italy : Development in July was generally good. In some provinces harvesting of the first leaves was begun.

United States : Crop condition on 1 August was 56.9 against 74.1 on the same date last year and 66.1 on 1 July 1932. Production is now estimated at 1,020 million pounds against 1,601 in 1931, a decrease of 36.3 %, and 1,414 on the average of 1926-30, a decrease of 27.9 %.

The acreage is the smallest since 1921, the decrease being shared by all States except New York, Pennsylvania and Missouri and affecting all import types. Amongst the various classes of tobacco the decreases in area as compared with last year are : flue-cured 36 % ; fire-cured 30 % ; light air-cured, including burley and Southern Maryland 18 % ; dark air-cured 38 % ; cigar filler 5 % ; cigar binder 31 % ; and cigar wrapper 22 %.

French Indo-China : The crop will be less widely grown than in the last few years. It has been good in Annam but, due to lack of rain, poor in Cambodia.

Japan : Production this year is estimated at 1,354,000 centals, 13 % below that of last year (1,558,000) and 5 % below the mean of the five years ending 1930 (1,425,000).

Palestina : The first picking of tobacco is in progress in the early districts of Safad and the Acre hills. The crop is expected to be slightly under the average.

Algeria : The crops planted early are good ; late transplantings and crops attacked by surface caterpillars, however, leave much to be desired. A production approximating to the average is, on the whole, expected.

OTHER PRODUCTS

Tea.

Ceylon : The area under cultivation during the first six months of 1932 was 457,000 acres. On 1 July crop condition was good (100). Production of black tea in the first six months of the year was 130 million pounds and of green tea 200,000 pounds.

Weather was normal in July save for slightly wet conditions during the early part of the month toward the southwest quarter of the island.

India : In North India weather was variable in June ; certain districts experienced wet dull weather, which interfered with the growth of the crop, but in Sylhet conditions were generally favourable. Immediate prospects can be described as fair to good.

In South India light monsoon conditions prevailed and prospects were fair.

In North India production up to the end of June showed an increase of 5 $\frac{1}{4}$ million pounds as compared with that up to the same date last year ; in South India outturn was 9.9 % ahead of that to the corresponding date last year.

French Indo-China : Picking of native gardens in Annam, which was completed in April, was satisfactory.

Coffee.

Kenya : Damage by insects has again been considerable but the condition of the trees and the favourable weather give every reason for expecting a crop of somewhat high quality, like that of last season. The 1932-33 crop is unofficially estimated at 30,240 thousand pounds against 18,002 in 1931-32 (an increase of 68 %) and 23,408 in the five years ending 1930-31 (an increase of 29 %).

Tanganika : In Bukoba picking of *robusta*, which predominates, was in progress by the end of June and a total of 134,000 centals was expected. *Arabica* had nearly all been picked ; it was doubtful if the crop would reach 22,000 centals.

Cacao.

Gold Coast : About 50 % of the minor crop had ripened by the end of June. In most districts 40 % had been harvested but owing to the unfavourable weather prevailing during the month preparation of the crop was to a certain extent hindered. In Ashanti and the Central Province the crop is reported to be normal but in the Eastern and Western Provinces below normal.

Crop movement has been as follows :

	June 1932	October 1931 to June 1932	June 1931	October 1930 to June 1931
Arrivals by rail at Takoradi and Accra (1000 lb.)	2,717	250,817	3,044	267,563
Shipments from Takoradi and Accra (1000 lb.)	11,032	326,980	19,932	368,922
Shipments from all ports (1000 lb.)	14,166	413,753	22,581	452,464
Stocks at Takoradi and Accra beach at end of June (1000 lb.)	14,849	—	...	—

What proportion of the arrivals at ports in June represents a carryover from the major crop is not known. The greater proportion of the maritime exports were major crop.

As regards the next major crop outstations report that flower setting is satisfactory and has been favoured by the weather. It is still too early to make any statement on yields but there are indications of an early and normal crop.

Groundnuts.

United States : Area was estimated in July at 1,917,000 acres against 1,687,000 in 1931, an increase of 13.6 %, and 1,779,000 on the average of 1926-30, an increase of 7.8 %. The area of the large-podded types in Virginia and North Carolina has been sharply decreased. A considerable increase in the runner and Spanish types in other States is associated with an increase in hogs, which usually harvest a considerable proportion of these types. The acreage to be harvested for the nuts will depend largely upon prices at harvest time.

Mexico : The crop suffered greatly from drought in June.

India : In the Madras Presidency the harvest of the summer crop had commenced in July. The yield was normal since rains had been timely during the growing period and insect attacks had been absent. Sowings of the early crop were above normal in Salem and Coimbatore due to timely rains and good prices ; crop condition was good.

French West Africa : The Senegal Government is distributing 1,014,000 centals of seed for the 1932 season so as to avoid lack of seed amongst the natives ; due to the small production of 1931 and the low prices at the beginning of the season it was feared that the natives, being short of money, would sell the greater part of their seed reserve when prices rose.

Tanganyika : In Tabora no rain fell during June and, though the area cultivated is extensive, the groundnut crop is poorer than early reports indicated, the revised estimate for the district being 123,000 centals long tons : In Kahama, Manyoni, Mwanza and Maswa, however, good yields are reported.

Union of South Africa: Crop returns from northern Transvaal, the principal area of production, continue to show a downward tendency. Total production is now estimated at 44,800 centals, a decrease of 45 % on that of 1930-31 (81,200) and of 63 % on the mean of the five years ending 1929-30 (121,200).

Colza, sesame and mustard.

Austria: Threshing of colza, which had already been performed in most cases, has given rather unsatisfactory results. This year's production is estimated at 47,600 centals (95,200 bushels) against 56,200 (112,400) in 1931 and 45,800 (91,600) on the average of the five preceding years; percentages 84.7 and 104.0.

Netherlands: According to the last estimate production of colza this year is 62,800 centals (125,700 bushels) against 85,900 (171,800) in 1931 and 125,100 (250,200) on the average of the five years ending 1930; percentages 73.1 and 50.2.

Poland: The area sown to colza is estimated at 106,000 acres, the same as last year but 71.4 % greater than the 1926-30 average (62,000).

Mexico: Preparations for sowing of sesame were made under good conditions.

Palestina: The area under sesame has been very much reduced. Yields, except on the coastal plain of the north and on the southern edge of the Plain of Esdraelon, will be poor. In many places the yield will not exceed 10 % of normal.

Jute.

India: The preliminary estimate of area sown to jute in Bengal, Bihar and Orissa and Assam is 1,903,000 acres against the preliminary estimate of 1,858,000 acres in 1931, an increase of 2.4 %, and the corresponding average for 1926-30, which was 3,396,000 acres, a decrease of 44.0 %.

In Bengal the weather was at the outset favourable for sowing in certain lowlying tracts in the east but drought, which lasted until the middle of April, interfered with further progress. In North Bengal sowings commenced late in consequence. Since then conditions have been favourable for field operations and for the growth of the crop generally. Good rainfall in the latter part of May facilitated sowings in West and parts of North Bengal. In July crop condition was reported as on the whole favourable. Harvesting was progressing at the beginning of August.

In Bihar and Orissa the crop was reported as thriving on 8 August, while in Assam it was generally satisfactory.

Large stocks of old jute were reported from several districts in Bengal and there are also considerable stocks in certain districts of Bihar and Orissa and of Assam.

Sericulture.

French Indo-China: The backward growth of the mulberry has hindered rearings. In Cambodia sleeping sickness and *gattine* are rather widespread.

Japan: On account of the wet and cool weather during June a few prefectures suffered from insect-pests and insufficient growth of mulberries but generally the effect upon yield prospects of cocoons is not so very marked.

Syria and Lebanon: According to the most recent estimate production of fresh cocoons this year is 4,795,000 lb. against 6,206,000 in 1931 and 7,315,000 on the average of the five years ending 1930; percentages 77.3 and 65.6.

FODDER CROPS

In the majority of European countries the fine weather of the first half of July favoured bringing in of hay and the copious rains in the latter half of the month favoured growth of temporary meadows and improved the condition of permanent meadows and pastures. Certain areas, however, have suffered from drought or from excessive rain. Prospects of root production are generally good.

The crop of clover and alfalfa in Canada is considerably less than that of last year while in the United States the total production of these crops as well as that of hay from permanent meadows exceeds fairly considerably the poor production of 1931.

* * *

Germany : Condition of mangolds is good. Growth of fodder crops was favoured by the rains but the damage caused by the drought in the first half of July was not entirely remedied by the end of the month.

Austria : Crop condition of all mangold varieties was much improved by the rains at the end of July.

Clover hay, which has been entirely saved, is of excellent quality ; yield has been very variable. Red clover already has a good aftermath on the moister lands ; this is utilized as green fodder. The greater part of the meadows, however, are rather thin and much of their growth has been utilized for pasture.

The second cutting of alfalfa was largely utilized as green fodder ; the later aftermath is very poor, particularly in the east, where little rain has occurred.

The growth of clover mixtures for second cutting, which has just begun, has in most cases been very abundant.

On permanent meadows for three cuttings hay has been saved under good conditions, while on those for two cuttings, particularly on higher lands, cutting had not been terminated at the end of July due to the bad weather that characterized the last decade of the month. The rains during this period caused good growth of aftermath.

Pastures show a good growth of grass but the cool rainy weather of the last decade of July hindered their utilization by stock. The first cutting of hay has given the following results:

		1932	1931	1927-30	% 1932 = 100	Mean = 100
Red clover	(000 cent.) . .	5,225	5,313	8,874	98.3	58.9
	(000 sh. tons) . .	261	266	444		
Alfalfa	(000 cent.) . .	1,720	2,249	2,353	76.5	73.1
	(000 sh. tons) . .	86	112	118		
Clover mixtures	(000 cent.) . .	2,161	2,998	3,083	72.1	70.1
	(000 sh. tons) . .	108	150	154		
Permanent meadows						
for 2 or 3 cuttings	(000 cent.) . .	45,415	34,062	44,472	133.3	102.1
	(000 sh. tons) . .	2,271	1,703	2,224		

Belgium : Clovers and alfalfa are rather thin but rains will improve their condition ; meadows and pastures show increased vigour.

Denmark : Crop condition of turnips was 100 on 1 August according to the system of the Institute against 96 on 1 July. For other roots and tubers the corresponding figures were 98 and 95.

Estonia: The drought in June and at the beginning of July had a bad effect on hay. The condition of clover was already poor in spring, but became worse in recent

Irish Free State: Fairly heavy rainfall was experienced during the last few days of June and showers, with occasional heavy rain, fell on about twenty days in July, with fine intervals of sufficient length to enable hay cutting and saving to proceed.

Temperatures were slightly below normal for the month but conditions for all growing crops and for grass were satisfactory.

Condition of Fodder Crops.

Crops and countries	CROP CONDITION (†)								
	August 1, 1932			July 1, 1932			August 1, 1931		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
CLOVER:									
Germany	2.7	—	—	2.6	—	—	2.9	—	—
Austria 1)	2.6	—	—	2.8	—	—	—	—	3.2
Estonia	—	—	2) 84	—	—	92	—	—	2) 90
Latvia	—	—	2) 90	2) 110	—	—	—	—	—
Netherlands { red clover.	—	2) 63	—	2) 69	—	—	2) 64	—	—
{ white clover.	2) 70	—	—	2) 70	—	—	2) 78	—	—
ALFALFA:									
Germany	2.6	—	—	2.6	—	—	2.6	—	—
Austria	2.9	—	—	2.9	—	—	—	—	3.3
United States	—	—	79.0	—	—	—	—	—	64.6
MANGOLDS:									
Germany	2.5	—	—	2.8	—	—	2.5	—	—
Austria	2.4	—	—	2.7	—	—	2.9	—	—
Bulgaria	130	—	—	130	—	—	160	—	—
Denmark	—	—	99	—	—	93	—	—	91
Lithuania	120	—	—	115	—	—	106	—	—
Switzerland	—	—	95	—	100	—	102	—	—
TEMPORARY MEADOWS:									
Austria 4)	2.8	—	—	2.7	—	—	—	3.0	—
Bulgaria	110	—	—	110	—	—	150	—	—
Denmark	—	—	96	—	—	98	103	—	—
Finland	—	f)	—	—	f)	—	e)	—	—
Norway	—	—	94	—	—	—	—	—	—
Sweden	2) 107	—	—	—	—	—	2) 109	—	—
Switzerland	3.9	—	—	4.1	—	—	4.2	—	—
United States { wild hay	—	—	76.1	—	—	—	—	—	71.9
{ hay total	—	—	77.7	—	—	—	—	—	—
PERMANENT MEADOWS:									
Germany { irrigated meadows	2.4	—	—	2.5	—	—	2.4	—	—
{ other meadows	2.7	—	—	2.6	—	—	2.6	—	—
Austria	2.7	—	—	2.6	—	—	2.9	—	—
Bulgaria	130	—	—	130	—	—	150	—	—
Denmark	—	—	93	—	—	93	—	—	83
Estonia	110	—	—	—	—	—	—	—	—
Finland	—	f)	—	—	—	f) g)	—	—	f) g)
Latvia	—	—	2) 85	—	2) 100	—	—	—	—
Netherlands 5)	2) 70	—	—	2) 74	—	—	2) 77	—	—
Sweden	—	—	2) 93	—	—	—	—	2) 94	—
Switzerland	4.0	—	—	4.2	—	—	4.2	—	—
PASTURES:									
Austria	2.9	—	—	—	3.0	—	—	—	3.7
Denmark	—	—	84	—	—	75	—	100	—
Finland	—	f)	—	—	—	—	—	f)	—
Netherlands	—	—	2) 58	2) 76	—	—	—	—	2) 64
Switzerland	3.6	—	—	3.3	—	—	4.3	—	—

a) above the average. — b) average. — c) below the average. — d) excellent. — e) good. — f) average. — g) bad. — h) very bad. — i) See explanation of the various systems on page 507. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Clover and hay. — 4) Klee grass. — 5) Meadows for hay. — 6) Grass.

Substantial progress was made with the cutting and saving of permanent meadows, though the intermittent rains damaged a slight proportion of the crops. The unit yield is somewhat below average, due largely to earlier cutting, but the total produce from land under meadow is likely to equal at least that of last year. Pastures were freshened and improved and indications so far are that the produce of growing crops will equal those of the previous season.

The following are the areas sown to certain fodder crops in 1932 in comparison with those for preceding years:

	1932	1931	Mean 1926-30	1932 = 100	% 1932 Mean = 100
	thousand acres				
Hay	2,334	2,313	2,251	101	104
Turnips	180	182	187	99	96
Mangolds	81	84	82	97	99

Finland: The preliminary estimates of fodder production this year, compared with those of 1931 and the average of the five years ending 1930, are as follows:

	1932	1931	Mean 1926-1930	1932 = 100	% 1932 Mean = 100
Permanent meadows (ooo cent.) . . .	7,093	8,949	9,948	79.3	71.3
(ooo sh. tons) . . .	355	447	497		
Temporary meadows (ooo cent.) . . .	58,430	62,146	52,563	94.0	111.2
(ooo sh. tons) . . .	2,921	3,107	2,628		
Turnips (ooo cent.) . . .	9,589	11,413	10,491	84.0	91.4
(ooo sh. tons) . . .	479	571	525		
Other roots and tubers (ooo cent.) . . .	3,045	1,911	2,096	159.3	145.3
(ooo sh. tons) . . .	152	96	105		

The area cultivated to grasses and mixtures of grasses and legumes is estimated at 59,000 acres.

France: Hay and other fodder crops have been brought in under good conditions in the west, the Paris basin and the north, where quality is good and quantity fairly satisfactory; the second cutting appears relatively large. In the south-west, on the other hand, the crop has in large part been lost due to the rains and frequent storms in the second part of July; quality is generally mediocre and sometimes very bad. Roots and fodder legumes have benefited from the rains; crop prospects are good.

Great Britain and Northern Ireland: The ideally dry sunny conditions during the early stages of the hay harvest were followed by very unfavourable weather with frequent heavy rain after the middle of July and throughout the area work was delayed and some of the crop damaged.

In England and Wales the bulk of the seeds hay and a good deal of that from permanent meadows was secured in excellent condition during the dry spell and quality is very satisfactory; the yield of seeds hay per acre is estimated at nearly 28 $\frac{1}{4}$ cut against the ten-year mean of 28 cwt. and that of hay from permanent meadows at rather more than 19 $\frac{1}{2}$ cwt. against 20 $\frac{1}{2}$ cwt. In Northern Ireland the hay crop is generally of quite good quality but the yield will be considerably less than in 1931. The heavy rains in the latter part of July greatly improved pastures, which had grown rather bare and at the end of the month there was abundant grass throughout the area.

The moist weather was beneficial to root crops though the prevalence of weeds rendered singling and cleaning very difficult. In England and Wales the condition of mangolds was generally reported to be moderate, the plant being thin in many districts and more sunshine being necessary to develop the crop; the yield is expected to be under average. In Scotland condition of mangolds was average, while in Northern Ireland they were looking very well, with every expectation of a satisfactory crop. Turnips and swedes, especially where early-sown, were generally reported to be looking well but where sowing was delayed by the dry spell the seed brairded irregularly and the crop is thin and uneven.

In England and Wales the yield of turnips expected to be under average, in Scotland average.

The following are the estimates of area under fodder crops in Great Britain and Northern Ireland.

	1932	1931	Mean 1926-30	1931 = 100	% 1932 Mean = 100
	Thousand acres				
Mangolds:					
England and Wales	230	270	305	85	75
Scotland	1.1	1.2	1.2	95	98
Northern Ireland	0.9	0.9	1.2	92	69
Turnips and swedes					
England and Wales	579	619	714	94	81
Scotland	350	361	378	97	93
Northern Ireland	37	36	43	103	88
Temporary meadows (for hay):					
England and Wales	1,538	1,726	1,570	89	98
Scotland	400	422	407	95	98
Northern Ireland	220	237	233	93	94
Temporary meadows (not for hay):					
Scotland	1,113	1,106	1,091	101	102
Permanent meadows (for hay):					
England and Wales	4,546	4,778	4,585	95	99
Scotland	168	166	168	101	100
Northern Ireland	233	232	236	101	99
Permanent meadows (not for hay):					
Scotland	1,407	1,405	1,364	100	103

Hungary: The second cutting of clover is over with average results; the third cutting of alfalfa is in progress and also promises an average yield Green fodder, moha and mangolds show good progress. Aftermath is poor. Pastures are dry in most places and only those in more lowlying situations offer sufficient feed.

Italy: Meadows have given abundant crops but in some insular provinces crop condition was rather bad in July.

Latvia: Condition of clover on 15 July was average according to 61.1 % of correspondents' replies, above average according to 27.5 % and below average according to 11.4 %. The corresponding figures for permanent meadows are 71.4 %, 18.0 % and 10.6 %.

Lithuania : Weather in July was very favourable to cutting of clover and of meadows in general.

The area of clover under cultivation is estimated at 882,000 acres against 795,000 in 1931 and 909,900 on the average of 1926-30; percentages 111 and 97.

Netherland : Cutting of hay was carried out under very favourable conditions. The harvest was generally satisfactory and the quality of the hay is excellent. Pastures have suffered from the drought, especially on higher ground but the rains in the last days of the month improved the quality of the grass. Growth of mangolds is satisfactory.

According to the latest estimate the area cultivated this year to alfalfa and other fodder plants is about 14,300 acres against 15,600 in 1931 and 17,800 in the five years ending 1930; 91.9 % and 80.3 %.

Sweden : Crop condition of fodder roots and tubers was generally estimated at 103 on 15 July 1932 according to the system of the Institute, against 97 on 15 July 1931.

Switzerland : July was characterized by extraordinarily abundant precipitation and very restricted insolation. Many areas experienced violent storms, which caused serious losses to fodder crops. In the upland areas haycutting was rendered extremely difficult and losses were considerable both in quality and quantity. On heavy soils growth of grass was notably compromised by the persistent rains and for that reason the aftermath will not be very satisfactory. Clover and alfalfa fields in particular suffered from the high humidity. In consequence condition of both permanent and temporary meadow may be said to be much less satisfactory than a month previously. Alps are somewhat better than in July but still markedly below recent years; the wet weather has compromised pastures.

Czechoslovakia : The prevalently rainy weather of July favoured fodder crops and pastures and a good production is expected.

Canada : The following are the estimates of production of hay and clover and of alfalfa :

	1932	1931	Mean 1926-30	% 1932 1931=100	Mean=100
Hay and clover (ooo centals) . .	230,080	279,200	320,692	82.4	71.7
(ooo sh. tons) . .	11,504	13,960	16,035		
Alfalfa (ooo centals) . .	21,560	26,840	38,812	80.3	55.5
(ooo sh. tons) . .	1,078	1,342	1,941		

United States : The following table gives comparative data of area and production of certain fodder crops :

	1932	1931	% 1932 1931=100
Tame hay (ooo acres)	52,424	53,431	98
Clover and timothy (ooo acres)	23,668	24,811	95
Alfalfa (ooo acres)	12,504	11,643	107
Wild hay (ooo acres)	13,327	11,966	111
Tame hay (ooo cent.)	1,365,180	1,284,260	106
(ooo sh. tons.)	68,259	64,213	
Clover and timothy (ooo cent.)	512,620	547,960	
(ooo sh. tons.)	25,631	27,398	94
Alfalfa (ooo cent.)	536,620	419,380	128
(ooo sh. tons.)	26,831	20,969	
Wild hay (ooo cent.)	233,820	162,500	144
(ooo sh. tons.)	11,691	8,125	

The area of annual legume and other hays has increased in most of the Southern and Western States, while material increases of clover and timothy and grain hays have occurred in the North and Northwest. Alfalfa acreage has been increased in most States. Production of all tame hay is larger than last year in most Central and Western States although clover and timothy hay production is generally lower in the Ohio, Missouri and Upper Mississippi valleys.

Palestine : Natural grazing is practically non-existent except, to some extent, in forests. Little grazing is left on the winter crop fields. Harvesting of summer crops is awaited by stock-owners with anxiety, as a limited amount of feed will then be available for their animals.

Large numbers of animals continue to be exposed for sale at low prices and the supply far exceeds the demand. This is partly due to the considerable number of animals for slaughter imported from adjacent territories and Cyprus, where similar conditions of fodder shortage obtain.

French Morocco : The pasture tracks have little feed this season.

Union of South Africa : Despite the continuous drought in the inland provinces of the Union and the general shortness of grazing small stock were still in good condition in June though cattle had fallen off. Grazing in Natal and Bechuanaland and in some of the lowveld areas of the Transvaal is fortunately still plentiful but in the Orange Free State particularly pasturage is rare and supplementary feed scarce.

LIVESTOCK AND DERIVATIVES

Livestock in the Irish Free State.

The statistics in the following table refer to the situation at 1 June of each year; for the years 1918 to 1924 inclusive the estimates had to be made from sample returns. The estimates for 1932 have been made by applying to the known figures for 1931 percentage changes calculated from the changes in 640 District Electoral Divisions, out of the total of 2,990, for which specially early figures were obtained.

YEAR	THOUSAND HEAD							
	Cattle				Pigs		Sheep	Poultry
	Total	Milch Cows	Other Cattle, under one year	Other Cattle, one year old and under two	Total	Sows		
1932	4,013	1,222	1,012	859	1,122	108	3,461	22,637
1931	4,029	1,222	995	856	1,227	125	3,575	22,782
1930	4,038	1,225	938	875	1,052	111	3,515	22,900
1929	4,137	1,227	1,010	875	945	96	3,375	22,089
1928	4,125	1,231	1,008	879	1,183	115	3,264	21,714
1927	4,047	1,234	1,001	780	1,178	124	3,120	21,584
1926	3,947	1,184	927	747	884	93	3,003	21,367
1925	3,991	1,183	919	771	731	75	2,813	17,279
1924	4,268	1,261	988	834	987	95	2,726	16,982
1923	4,278	1,269	972	857	1,186	124	2,666	17,278

The tendency to decline in numbers of cattle that has been noticeable during in the past decade in further exemplified by the slight fall this year. The number of milch cows remains practically the same, while the numbers of other cattle under one year and one year old and under two show increases, more marked in the former category.

The downward phase of the pig cycle has begun, with a decrease of 8.6 %; the decrease in the number of sows is 13.9 %.

Sheep show the first decline since 1923, with a decrease of 3.2 % from the 1931 figure, which was the largest since 1909.

Poultry numbers show a further fall from the record of 1930 but are still higher than in 1929.

Livestock in Northern Ireland.

The following are the results of the annual enumeration of livestock in Northern Ireland as on 1 June 1932, statistics for preceding years being given to indicate the recent trends in the various categories.

YEAR	Horses for agri- cultural purposes	CATTLE			Sheep	Donkeys	Mules	Pigs	Goats
		Total	Cows in milk	Heifers in calf					
1932	86,690	714,592	245,289	22,679	791,939	7,861	194	219,767	44,436
1931	86,486	680,649	236,915	22,605	793,834	7,846	224	235,672	44,986
1930	87,101	672,776	234,025	22,278	704,100	8,299	235	216,315	48,338
1929	85,805	699,989	245,924	18,136	654,589	8,691	254	192,058	50,950
1928	87,178	737,866	252,616	21,181	624,503	8,473	252	229,125	51,443
1927	88,754	697,339	248,793	21,490	600,349	8,519	261	236,285	52,770
1926	109,102	666,402	237,219	22,778	529,474	8,512	258	158,331	51,988
1925	111,906	667,142	236,664	12,849	484,067	8,567	274	112,412	48,429
1924	116,633	735,622	256,739	14,171	509,405	9,280	368	139,778	54,952
1923	122,326	747,618	263,163	16,683	463,971	9,971	385	195,789	57,880

There has been a 5 % increase in the total number of cattle, as compared with last year's increase of only 1 %; the decreases of the previous two years are not yet, however, made up. The greatest proportionate increases are in cattle under two years old. That this increase, which was also marked last year, is coming to an end is indicated by the fact that the number of heifers in calf has this year remained practically stationary. The increase in milch cows (3.5 %) is this year greater both absolutely and relatively than in 1931 but the level of 1928, after which the decline took place, has not yet been regained.

The number of sheep has declined by 0.2 %, the first retrograde movement since 1925, despite the increase in the number of ewes for breeding purposes, which has been continued also this year.

Pigs show a reversal of the upward movement of the previous two years, the fall this year being 6.7 %. The number of sows for breeding has decreased by 11.1 %.

Horses show a slight increase on the number of last year, the downward tendency having been, on the whole, held in check after 1929. There is a distinct increase (5.3 %) in unbroken horses one year old and upwards.

The advance in poultry-rearing has been renewed this year, there being an increase in all classes, particularly marked in ordinary fowl (8.5 %), the number of which, like the total, which has risen by 7.8 %, has attained a new record. Other categories have not regained their 1930 levels.

YEAR	THOUSAND HEAD				
	Fowls	Ducks	Geese	Turkeys	Total
1932	8,302	584	136	348	9,370
1931	7,649	572	133	336	8,690
1930	7,659	622	146	381	8,808
1929	7,136	599	157	417	8,309
1928	6,829	637	165	348	7,979
1927	6,759	672	162	304	7,898
1926	6,768	690	157	301	7,916
1925	5,741	613	131	249	6,733
1909-1913	5,082	724	175	292	6,273

The United States Pig and Lamb Crops.

The number of pigs saved during the six months ended 1 June 1932 was 50,093,000, a decrease of 7 % on the number saved during the corresponding period a year earlier. The decrease resulted from a diminution of 3 % in the number of sows farrowed and of 4 % in the average number of pigs saved per litter, particularly in the western part of the Corn Belt, due chiefly to the severe weather in March and to the fact that farrowings this year were earlier than last. In areas outside the Corn Belt there was a general increase in the number of pigs saved, except in the Far Western States, which suffered severely from the drought of 1931.

The number of sows to farrow during the six months ending 1 December 1932 is estimated on the basis of breeding intentions about 1 June at 4,488,000, an increase of 1.2 % over the number farrowed in the corresponding period of 1931. Increased farrowings are estimated for all regions except the West North Central and Far Western States.

The indicated number of hogs over six months of age on 1 June was about 5 % greater this year than last. Except in the States most seriously affected by the 1931 drought all of the Corn Belt States had larger indicated numbers.

The United States lamb crop of 29,717,000 head was this year 8 % smaller than that of 1931 and less than 1 % smaller than that of 1930. The number of lambs saved per hundred ewes one year old and over on 1 January 1932 was 80.4 against 89.2 in 1931 and 86.6 in 1930. This is the smallest percentage in the nine years for which similar reports have been issued, the 1931 percentage being the largest. While the number of ewes one year old and over on 1 January 1932 was about 2 % larger than on 1 January 1931 there was a very heavy deathrate in the western sheep States before lambing this year. All of the decrease in the lamb crop this year was due to the fall in the number of lambing ewes in these States, to the relatively poor condition of ewes at breeding and lambing time and to unfavourable weather during the early lambing period.

Sheep in New Zealand.

The interim return of sheep as at 30 April 1932 shows a decrease of nearly one and a fifth million compared with the total at the corresponding date in 1931. This is the second successive decrease and represents a fall of 2,235,000 from the record figure of 30,841,000 in 1930. The total is now the lowest since 1928. As last year, the decrease has been proportionately greater in the North Island (5.45 %), which possesses more than half the total, than in the South Island (2.31 %), but the rate of decrease in Gisborne-Hawke's Bay, the chief sheep district of the country, is only 2.3 % this year as compared with 7.4 % last year. Similarly, in the South Island, the Canterbury-Kaikoma district, where relatively the greatest decrease was registered last year, shows this year a slackening in the rate of fall. The following table shows the movement of the total sheep population in the last ten years.

	THOUSAND HEAD		THOUSAND HEAD
1932	28,606	1927	25,649
1931	29,793	1926	24,905
1930	30,841	1925	24,548
1929	29,051	1924	23,776
1928	27,134	1923	23,081

Condition of livestock and dairy production.

Belgium : The economic situation has not improved. Sales of fat stock are still difficult. The horse trade is seriously affected by the removal of the import duties.

Irish Free State : The weather in July favoured fodder crops and there is no shortage of concentrated or other foods. Milk production in July was satisfactory though very slightly below normal for the season.

Great Britain and Northern Ireland : In Northern Ireland both stores and dairy stock are in good condition and health and appear to have thriven well during July; sheep are also generally in good condition. In Scotland supplies of dry fodder are reported to be plentiful and of good quality while concentrated foods are available in sufficient quantities; prices of grain offals and oilcakes showed, however, a tendency to advance.

Milk yields in England and Wales were about normal, in Scotland fully up to the average for the season and in Northern Ireland well maintained.

Netherlands : Pasture grass is sufficient for dairy cattle. Milk production is about normal.

Switzerland : On the average of the second quarter milk deliveries showed a fall of 4.9 % on those of the corresponding period of 1931. The decrease for April is 2.9 % that for May 2.9 % and that for June 7.4 %.

United States : The amount of wool shorn or to be shorn in 1932 in the United States is 341,386,000 pounds according to the preliminary estimates ; this is 7.3 % smaller than the amount shorn in 1931. The decrease is due to the lighter weight of fleeces in most States, especially in the western sheep States and to the smaller number of sheep shorn this year in the Western States as a result of above-average death losses in all of these States. The sharp reduction in weight per fleece in some Western States reflects in part cleaner fleeces following a winter of heavy snow fall and a wet spring but also a decrease in scoured wool equivalent due to poorer fleeces in areas where feed was short.

French Morocco : Health and condition of livestock are good ; the herds are finding sufficient feed in the stubble.

Union of South Africa : The total production of wool in the Union and in adjoining territories during the 1932-33 season is estimated at 301 million pounds against 335 million in 1931-32, a decrease of 10 %. The quantity of wool (greasy equivalent) exported in normal years is larger than the estimate of production based on farmers' returns, due probably in the main to additional exports of wool pulled from slaughtered sheep and sheep that have died from disease, wool from skins and wool shorn by speculators.

Actual exports through Union ports for the years ending 30 June have in the past six years been as follows in thousands of pounds greasy equivalent :

1931-32 (up to 31 May)	278,994
1930-31	283,264
1929-30	307,212
1928-29	283,004
1927-28	273,127
1926-27	249,159

Stocks at East London, Port Elisabeth, Durban, Cape Town and Mossel Bay on 31 May 1932 amounted to 24,664,000 pounds unsold wool and 8,327,000 pounds sold wool against 13,376,000 and 1,905,000 respectively on 30 June 1931, the end of the previous season, totals for these two dates of 32,991,000 pounds and 15,281,000 pounds respectively.

Condition and quality of the 1932-33 clip are lighter than average and finer than last year and, excepting a few individual clippings from one or two very dry districts, absolutely sound. The season's sales begin at Port Elizabeth on 5 September and also at Cape Town about the first week of September.

New Zealand : Despite adverse marketing conditions in the dairying industry production of butter continues at a record level. The quantity of butter received into grading stores in May was 15.4 % ahead of the May figure for 1931, which was already a record for the month. The year 1931-32 will probably close with a new annual record as the cumulative figures for ten months show an increase of 7 % over the previous highest total obtained last year for the same period.

Cheese production is also well maintained, the quantity for the month being 26.4 % ahead of that for the corresponding period of 1931 and almost on a par with the record of May 1930. The ten-month total is only 2.6 % below the corresponding total of 1930-31.

Total butterfat production for the ten months exceeded that for the same period in 1930-31 by 2.4 %.

LATEST NEWS

Argentina: According to the first estimate, the area under wheat shows an increase of 11.3 % on that of last year but remains 7.9 % below the five-year average (19,250,000 acres against 17,295,000 in 1931 and the average of 20,901,000). For rye, to which 1,532,000 acres have been devoted, there has been an increase both on the area of last year (by 11.2 %) and on the average (by 43.8 %). Oats, which occupy 3,509,000 acres, show scarcely any change, with an increase of 1.1 % on last year area and a decrease of 0.7 % on the average, while the barley area, with 1,409,000 acres though showing a slight decrease of 2.1 % on that of last year remains 10.4 % above average. On the other hand there has been a fairly large decrease for flax, of which the 7,290,000 acres sown represent a reduction of 15.6 % on the area of last year though remaining slightly above the average by 1.6 %.

The over-abundant rains and the locusts have damaged cereals in Entre Rios and in the north of the Republic and have caused serious losses to flax in the above-mentioned province.

IMPORT DUTIES ON CEREALS AND FLOUR

CHANGES TO BE MADE IN THE DUTIES PUBLISHED ON PAGES 160 TO 163 OF THE CROP REPORT FOR FEBRUARY
(SEE ALSO THE SAME HEADING IN THE PRECEDING CROP REPORTS FOR THIS YEAR).

COUNTRY	PRODUCT	Date when enforced	Original data per metric quintal	Data in Amer. cents per bushel or barrel
Austria	Rye flour (basic duty)	15 July	gold crs. 20.00	360.15
"	Wheat- and rye-flour	16 July	1)	1)
"	Rye (supplementary duty)	5 August	gold crs. 4.00	20.58
"	Rye flour (supplementary duty)	"	" 8.00	144.06
Spain	Maize	1 August	pes. 7.50	n. 36.71
France	Wheat	25 Sept. 1931	2)	2)
"	"	24 May 1932	3)	3)
Latvia	Rye, barley, oats	13 July	Cz. crs. 56.00	147.86
Czechoslovakia	Wheat- and rye-flour (supplementary duty)	9 July	" 29.00	21.79
"	Rye (supplementary duty)	1 August	" 58.00	152.80
"	Wheat- and rye-flour (supplementary duty)	"	"	"

1) Import of these products is permitted only on presentation of a special authorization. — 2) Hungary as from 25 September 1931 and Rumania as from 24 May 1932, have each the right to import 10 % of the amounts of wheat considered necessary for the annual requirements of France under the following conditions: the wheat will be sold at the price of the open market and imported on payment of the general minimum duty but the French Government will reimburse to the said States a sum to be fixed each year and of which the total amount per quintal shall not exceed 30 % of the import duty. — 3) The restriction of imports to certain quantities is abolished.

TRADE

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1930	1931	1930	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Wheat. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	205	368	0	0	5,531	2,729	0	0	3,234	0
Hungary	520	375	0	0	7,804	5,221	0	0	5,247	0
Lithuania	0	0	0	0	20	540	0	0	545	0
Poland	165	119	0	2	1,415	1,720	342	49	1,847	49
Rumania	220	591	0	2	21,134	8,856	7	9	9,054	9
U. S. S. R. . . . .	...	...	—	—	37,426	50,067	—	—	67,735	—
Yugoslavia	509	...	0	—	8,684	2,844	0	0	3,247	0
Canada	9,515	12,469	4	2	97,912	129,948	71	66	137,150	79
United States	4,167	4,881	525	809	50,795	38,667	6,744	10,631	46,253	11,616
Argentina	5,088	9,762	—	—	80,562	67,362	—	—	71,725	—
Chile . . . . .	...	...	...	...	7	425	0	0	428	0
Turkey	26	15	0	...	908	251	0	7	265	7
Algeria . . . . .	...	...	...	...	3,292	6,532	1,257	743	6,810	1,371
Tunis	1,706	1,334	18	18	3,885	2,751	392	527	3,704	542
Australia	5,536	8,810	0	0	70,087	70,068	0	0	76,505	0
<i>Importing Countries:</i>										
Germany	15	0	4,328	2,584	7,308	265	17,675	16,213	265	18,805
Austria	0	0	589	675	0	86	5,862	4,636	86	5,315
Belgium	207	269	3,311	3,325	3,415	1,576	28,751	27,423	2,079	31,184
Denmark	0	0	617	873	9	44	8,203	4,478	46	4,877
Spain	0	0	1,362	0	0	4	1,523	0	4	0
Estonia	0	0	9	33	0	0	256	340	0	370
Irish Free State	0	0	520	454	13	18	5,935	5,919	18	6,435
Finland	0	0	37	4	0	0	373	77	0	90
France	0	0	6,971	5,924	9	966	47,468	38,451	966	46,597
Gr. Brit. and N. Irel.	64	40	10,834	9,072	1,142	639	126,475	111,135	683	124,551
Greece	0	0	1,175	1,764	0	0	13,199	13,166	0	14,233
Italy	0	0	4,156	6,497	18	22	20,660	48,131	22	50,122
Latvia . . . . .	...	...	...	...	395	0	395	924	0	1,030
Norway . . . . .	...	0	256	216	0	0	3,142	2,895	0	3,126
Netherlands	7	2	1,739	1,248	108	675	15,364	15,567	683	16,568
Portugal	—	—	90	752	—	—	655	1,040	—	1,316
Sweden	0	0	666	112	9	31	3,768	2,707	31	2,879
Switzerland	2	0	884	734	15	2	11,660	10,077	2	11,096
Czechoslovakia	0	0	1,023	802	4	4	12,134	6,387	4	7,079
British India	4	201	0	675	179	2,125	179	6,180	2,251	6,687
Japan . . . . .	—	—	...	...	...	...	13,651	12,425	...	15,311
Syria and Lebanon . . . . .	...	...	...	...	494	117	198	37	137	44
Egypt . . . . .	...	...	...	...	0	2	893	1,010	2	1,019
Union of South Africa . . . . .	...	...	...	...	2	0	926	1,407	0	1,501
New Zealand . . . . .	...	...	...	...	0	0	93	126	0	128
Totals	27,956	39,236	39,114	36,577	402,187	394,557	348,251	342,773	441,028	384,136
Rye. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Germany	2	0	1,711	35	2,044	1,213	10,082	661	1,213	690
Bulgaria	2	97	0	0	988	1,369	0	0	1,413	0
Hungary	123	20	0	0	1,420	1,545	0	0	1,579	0
Lithuania	0	0	0	0	0	163	2	0	163	0
Poland	73	134	0	0	2,216	5,758	123	0	5,880	2
Rumania	11	95	0	0	1,660	1,263	0	0	1,299	0
U. S. S. R. . . . .	...	...	—	—	17,910	9,262	—	—	15,794	—
Canada	624	375	0	...	3,677	1,102	0	0	1,171	0
United States	163	7	—	—	476	90	—	—	90	—
Argentina	412	157	—	—	4,667	602	—	—	992	—
Turkey	35	13	0	0	675	353	0	0	368	0
Algeria . . . . .	...	...	...	...	13	35	0	0	35	0
<i>Importing Countries:</i>										
Austria	0	0	306	176	0	9	1,614	2,116	9	2,205
Belgium	60	22	262	586	569	121	2,284	3,325	126	3,739
Denmark	0	2	397	392	0	4	4,149	6,766	4	7,103
Estonia	0	0	0	37	0	0	13	183	0	194
Finland	0	0	379	117	0	0	1,012	1,440	2	1,570
France	0	0	148	170	0	0	1,574	1,334	0	1,378
Italy	0	0	22	62	0	0	150	593	0	597
Latvia . . . . .	...	...	...	...	...	...	93	243	0	260
Norway	0	0	163	260	0	0	3,303	2,800	0	3,023
Netherlands	4	99	459	906	326	728	3,845	5,867	791	6,180
Sweden	7	2	231	20	26	4	1,199	492	4	520
Switzerland	0	0	11	7	0	0	86	163	0	174
Czechoslovakia	0	0	79	256	7	47	5,009	375	476	844
Totals	1,516	1,023	4,168	3,024	36,674	24,097	34,538	26,358	31,409	28,479

1) 2) See notes page 565.

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Wheat flour. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Germany	2	2	9	15	64	126	179	194	128	238
Belgium	7	40	2	4	66	194	46	220	216	231
Bulgaria	40	26	0	0	736	201	0	0	220	0
Spain	0	9	0	0	18	68	0	0	75	0
France	251	895	29	35	4,411	6,541	231	531	7,423	569
Hungary	176	320	0	0	2,115	3,942	0	0	4,008	0
Italy	128	75	26	35	2,041	1,107	271	207	1,191	223
Latvia	...	...	...	...	0	22	0	2	73	0
Lithuania	2	2	0	0	24	22	0	0	24	0
Poland	22	20	0	0	494	593	4	22	615	24
Rumania	2	26	0	0	855	421	0	0	421	0
Yugoslavia	2	2	0	0	97	88	0	2	88	2
Canada	1,120	961	2	4	9,676	12,198	37	46	13,113	49
United States	833	1,532	0	0	14,409	21,131	0	2	23,164	2
Argentina	64	170	—	—	1,371	1,887	—	—	2,055	—
Chile	...	...	...	...	18	97	0	0	104	0
India	57	115	0	0	802	979	0	2	1,032	2
Turkey	0	0	0	0	11	29	4	11	29	11
Japan	...	...	...	...	2,641	3,148	101	192	3,472	212
Algeria	...	...	...	...	99	243	23	44	267	57
Tunis	13	18	2	0	128	243	53	12	251	11
Australia	981	917	0	0	13,067	9,687	0	0	10,404	0
<i>Importing Countries:</i>										
Austria	0	4	247	904	7	13	1,257	3,078	13	3,704
Denmark	0	2	82	112	11	22	1,228	1,466	24	1,572
Estonia	0	2	0	4	11	15	86	86	2	88
Irish Free State	2	2	348	295	26	37	3,691	3,364	40	3,691
Finland	0	0	110	176	0	0	1,464	1,982	0	2,150
Gr. Brit. and N. Irel.	465	377	875	1,067	5,137	4,209	10,516	11,753	4,608	12,816
Greece	0	0	2	9	0	0	64	157	0	165
Norway	0	0	106	203	11	2	1,265	1,279	2	1,396
Netherlands	0	2	51	437	68	108	694	3,499	115	3,845
Portugal	—	—	35	24	—	—	163	198	—	218
Sweden	0	0	4	2	0	2	35	66	2	71
Czechoslovakia	0	0	88	15	9	11	1,058	2,410	11	2,432
Ceylon	—	—	22	42	—	—	379	403	—	445
Java and Madura	—	—	...	...	—	—	990	840	—	1,025
Indo-China	—	—	15	20	—	—	362	395	—	428
Syria and Lebanon	...	...	...	...	90	9	344	130	22	168
Egypt	...	...	...	...	0	0	2,266	3,007	0	3,560
Union of South Africa	...	...	...	...	9	9	13	262	11	265
New Zealand	...	...	...	...	2	2	192	192	2	234
Totals	4,180	5,539	2,055	3,403	58,518	67,435	26,942	36,053	73,225	39,906
Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	2	22	0	0	403	1,574	0	0	1,598	0
Spain	0	4	0	0	11	141	0	0	152	0
Hungary	0	7	0	0	51	580	7	4	580	4
Lithuania	0	2	0	0	0	15	0	0	15	0
Poland	33	15	0	0	3,137	2,793	0	0	2,798	0
Rumania	750	1,091	0	0	15,492	33,670	0	2	33,797	0
Czechoslovakia	198	4	0	0	1,975	3,001	2	4	3,003	4
U. S. S. R.	...	...	—	—	15,115	17,249	—	—	23,385	—
Canada	489	2,976	0	0	5,688	7,965	0	0	9,240	0
United States	218	353	—	—	2,141	4,678	—	—	4,978	—
Argentina	1,634	503	—	—	7,923	5,463	—	—	5,701	—
Chile	...	...	...	...	456	419	0	0	536	0
India	258	108	0	2	666	112	0	2	306	2
Syria and Lebanon	...	...	...	...	377	668	93	4	869	7
Turkey	62	93	0	0	2,875	496	0	0	593	0
Algeria	...	...	...	...	615	1,440	2,233	287	1,444	465
Egypt	...	...	...	...	0	0	273	82	2	152
Tunis	271	20	2	4	465	198	553	388	220	390
Australia	73	95	0	0	1,594	1,512	0	0	1,552	0
<i>Importing Countries:</i>										
Germany	0	0	1,250	1,067	18	62	14,063	14,875	62	18,056
Austria	0	0	117	236	0	0	1,971	2,006	0	2,158
Belgium	139	108	452	688	1,590	1,021	8,909	9,961	1,076	10,538
Denmark	24	13	256	1,325	470	1,230	2,932	13,990	1,232	15,007
Estonia	0	0	0	0	0	0	0	13	0	13
Irish Free State	0	0	0	0	26	20	311	284	20	454
France	0	0	714	633	15	22	8,871	7,225	22	7,721
Gr. Brit. and N. Irel.	0	7	818	1,093	9	68	13,572	17,432	68	18,691
Greece	0	0	0	2	0	0	170	79	0	79
Italy	0	0	31	40	0	0	791	736	0	756
Latvia	...	...	...	...	0	0	4	201	0	212
Lithuania	0	0	4	216	0	0	785	1,030	0	1,078
Norway	0	18	622	1,025	262	582	8,512	13,614	591	14,716
Netherlands	2	0	205	187	0	0	2,842	2,606	0	2,829
Switzerland	0	0	0	0	13	24	37	130	29	130
Yugoslavia	0	4	0	0	0	0	0	0	0	0
Totals	4,155	5,443	4,471	6,527	61,387	84,905	66,931	84,964	93,869	93,466

1) 2) See notes page 565.

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-JUNE 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Irish Free State . . .	0	4	4	104	73	251	218	375	254	452
Hungary	0	0	0	29	4	13	2	117	13	141
Lithuania	0	0	0	0	13	84	0	0	84	0
Poland	9	4	0	0	55	132	0	0	137	0
Rumania	22	35	0	0	258	1,775	0	0	1,779	0
Czechoslovakia . . .	148	0	2	9	778	710	57	20	710	143
U. S. S. R. . . . .	...	...	—	—	...	...	—	—	10,726	—
Yugoslavia	0	0	0	0	2	2	0	84	2	86
Canada	421	778	60	0	4,453	2,231	613	234	2,659	234
United States	73	20	2	0	776	119	20	205	130	205
Argentina	814	1,695	—	—	15,419	13,924	—	—	15,062	—
Chile . . . . .	...	...	...	...	172	1,881	0	0	2,178	0
Algeria . . . . .	...	...	...	...	262	1,235	568	152	1,292	225
Tunis	31	29	0	0	172	507	0	9	245	9
Australia	18	4	0	0	97	71	2	2	73	2
<i>Importing Countries:</i>										
Germany	0	2	13	139	9	218	214	862	220	1,005
Austria	0	0	126	203	0	2	1,351	1,989	2	2,227
Belgium	4	0	201	225	31	2	1,338	3,157	2	3,494
Denmark	0	0	68	163	66	20	463	1,149	20	1,270
Estonia	0	0	0	22	0	0	7	159	0	159
Finland	0	0	7	49	20	7	46	192	7	260
France	0	0	511	322	7	18	2,705	2,015	20	2,205
Gr. Brit. and N. Irel.	2	18	902	838	203	386	7,888	9,372	397	10,697
Italy	0	0	291	245	0	0	3,618	3,677	0	3,741
Latvia . . . . .	...	...	...	...	0	0	7	53	4	57
Norway	0	0	0	0	2	4	273	4	4	4
Netherlands	0	11	300	456	42	366	2,251	3,241	375	3,609
Sweden	29	0	97	201	150	40	1,098	1,116	40	1,334
Switzerland	0	0	375	362	2	2	4,672	4,244	2	4,564
Totals	1,571	2,598	2,959	3,307	23,066	24,004	27,211	32,428	36,737	36,123

Maize. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-JUNE 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	227	275	0	0	2,324	3,157	0	0	3,477	0
Rumania	2,703	1,691	0	0	25,686	13,819	0	2	18,638	2
Yugoslavia	82	439	0	0	1,534	6,014	24	7	6,420	24
United States	344	40	20	35	1,340	783	181	483	1,314	520
Argentina	21,528	23,462	—	—	124,736	106,891	—	—	199,008	—
Brazil . . . . .	...	...	...	...	0	11	—	—	18	—
Java and Madura . . .	79	225	—	—	2,167	1,920	—	—	2,407	—
Indo-China	108	64	—	—	1,490	1,612	—	—	2,584	—
Syria and Lebanon . .	...	...	...	...	7	141	24	35	159	49
Turkey	71	7	0	0	240	66	0	0	212	0
Egypt . . . . .	...	...	...	...	7	4	35	71	4	298
Union of South Africa	...	...	...	...	1,625	1,032	0	0	3,298	0
<i>Importing Countries:</i>										
Germany	0	0	1,808	899	0	0	11,901	5,262	0	10,007
Austria	0	0	710	1,320	0	2	5,137	3,406	0	6,270
Belgium	143	150	1,581	1,420	1,047	584	12,666	9,934	955	17,075
Denmark	0	0	2,520	1,204	0	0	15,238	6,283	0	13,539
Spain	0	0	851	117	0	0	5,152	2,480	0	3,666
Irish Free State . . .	0	0	1,645	1,389	0	26	8,909	6,801	26	12,044
Finland	0	0	26	13	0	0	302	128	0	355
France	2	0	1,956	1,900	22	35	15,391	13,104	40	23,755
Gr. Brit. and N. Irel.	364	185	4,568	3,419	2,079	1,497	42,003	31,255	2,407	53,281
Greece	0	0	115	73	0	0	3,300	245	0	373
Hungary	0	2	192	445	62	234	439	760	240	2,337
Italy	0	0	2,211	1,748	4	7	11,808	9,577	7	17,447
Norway	0	0	375	306	0	0	2,714	2,460	0	3,977
Netherlands	13	18	2,487	2,269	168	218	26,134	19,414	273	32,441
Poland	0	0	13	128	—	0	77	335	0	496
Portugal	—	—	139	66	—	—	814	1,133	—	1,605
Sweden	0	0	642	507	0	0	4,001	3,812	0	7,311
Switzerland	0	0	192	179	2	2	2,286	1,911	2	3,611
Czechoslovakia . . .	0	0	650	1,093	0	0	8,208	7,423	2	13,115
Canada	0	0	331	181	7	7	2,899	2,855	9	4,760
Japan . . . . .	—	—	...	...	—	—	1,508	1,034	—	1,689
Tunis	0	7	0	7	0	9	322	267	9	298
Totals	25,664	26,563	23,032	17,733	164,547	138,071	181,473	131,423	241,511	230,345

2) See notes page 565.

COUNTRIES	JUNE				SIX MONTHS (January 1-June 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	53	82	0	0	461	379	0	0	833	0
Italy	320	148	2	4	1,898	1,682	24	26	3,109	53
United States	262	245	11	13	1,559	1,561	123	247	2,771	328
Brazil	—	—	—	—	328	694	—	—	1,993	—
India	4,096	4,870	97	106	32,315	28,989	392	293	48,442	692
Indo-China	2,039	1,933	—	—	14,136	11,228	—	—	21,153	—
Siam	2,948	1,803	—	—	17,081	13,133	—	—	25,029	—
Egypt	—	—	—	—	121	423	664	62	686	836
<i>Importing Countries:</i>										
Germany	77	161	646	1,135	496	580	3,428	3,501	1,373	8,962
Austria	0	0	62	46	0	0	262	313	0	756
Belgium	9	20	108	97	115	84	582	573	190	1,349
Denmark	0	0	7	18	0	0	53	79	0	157
Estonia	—	—	2	2	—	—	11	13	—	33
Irish Free State	0	0	4	9	0	0	26	31	0	53
Gr. Brit. and N. Irel.	82	90	816	637	443	483	3,794	2,771	937	6,792
Greece	11	22	170	254	108	115	1,398	1,358	271	2,690
Hungary	—	—	29	44	—	—	300	273	—	540
Hungary	0	0	18	26	0	0	181	249	2	481
Latvia	—	—	—	—	0	0	—	—	31	0
Lithuania	—	—	—	—	0	0	7	13	0	22
Norway	0	0	11	13	0	0	37	66	0	117
Netherlands	143	234	302	1,713	825	1,237	1,673	3,018	2,480	5,009
Poland	31	57	205	37	187	115	547	445	606	1,726
Portugal	—	—	79	57	—	—	527	300	—	613
Sweden	—	—	0	44	—	—	90	123	—	123
Switzerland	—	—	24	31	0	0	196	201	0	454
Czechoslovakia	0	0	119	137	0	0	516	499	0	1,127
Yugoslavia	0	0	20	29	2	2	238	439	4	511
Canada	0	0	99	101	9	0	441	492	0	710
Chile	—	—	—	—	—	—	119	236	—	441
Ceylon	0	4	908	736	2	13	5,540	5,075	18	10,196
Java and Madura	—	—	—	—	20	60	2,039	3,183	232	6,327
Japan	—	—	—	—	51	2,247	1,197	1,043	4,195	2,773
Syria and Lebanon	—	—	—	—	0	0	159	97	0	322
Turkey	0	0	9	18	0	0	40	86	0	183
Algeria	—	—	—	—	2	2	101	64	2	179
Tunis	0	0	2	2	0	0	26	18	0	31
Union of South Africa	—	—	—	—	0	0	364	414	0	1,025
Australia	4	15	2	2	51	79	31	18	161	29
New Zealand	—	—	—	—	0	0	35	33	0	73
Totals	10,075	9,684	3,754	5,313	70,211	63,106	25,165	25,623	114,487	55,795
Linseed. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Estonia	0	0	0	0	2	4	0	0	4	0
Lithuania	2	2	0	0	97	121	0	0	247	0
Argentina	5,474	2,650	—	—	24,125	22,355	—	—	41,454	—
India	132	331	0	0	882	1,228	0	0	2,515	0
Tunis	2	0	0	0	4	0	0	0	4	0
<i>Importing Countries:</i>										
Germany	0	0	655	520	7	7	4,354	4,577	13	7,507
Belgium	4	2	163	251	110	40	1,755	2,134	205	3,702
Denmark	—	—	53	4	—	—	254	225	—	417
Spain	—	—	42	53	—	—	262	247	—	465
Finland	0	0	2	2	0	0	29	40	0	68
France	0	0	366	567	4	11	2,647	2,879	18	5,814
Gr. Brit. and N. Irel.	0	0	472	454	2	4	3,931	4,154	4	7,599
Greece	0	0	4	4	0	0	31	42	0	95
Hungary	0	2	0	0	7	11	0	2	42	0
Italy	0	0	139	185	0	0	721	703	0	1,351
Latvia	—	—	—	—	18	49	31	33	106	0
Norway	0	0	18	29	0	0	185	212	0	289
Netherlands	2	2	611	822	66	42	5,307	5,324	49	9,253
Poland	0	0	18	35	2	4	73	227	7	273
Sweden	—	—	117	176	—	—	571	626	—	1,056
Czechoslovakia	0	0	77	40	2	2	315	269	0	582
Yugoslavia	0	0	29	2	0	0	53	73	0	126
Canada	0	26	79	0	2	300	256	0	584	194
United States	—	—	287	644	—	—	3,058	3,411	—	8,109
Japan	—	—	—	—	—	—	108	90	—	185
Australia	0	0	29	35	0	0	234	198	0	291
Totals	5,616	3,015	3,161	3,823	25,330	24,178	24,176	25,466	45,259	47,468

2) See notes page 565.

COUNTRIES	JUNE				SIX MONTHS (January 1-June 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Butter. — (in thousands lb.).										
<i>Exporting Countries:</i>										
Austria	62	2	33	353	300	1,166	725	1,052	2,862	1,565
Denmark	35,349	36,484	66	146	181,558	190,579	789	972	378,429	1,596
Estonia	3,609	4,134	0	0	11,665	12,436	0	0	31,844	0
Irish Free State	7,476	7,295	26	20	11,466	12,573	2,282	3,146	42,307	3,325
Finland	2,407	33	0	0	18,609	21,433	0	0	38,367	0
Hungary	419	3,245	0	0	1,724	701	0	112	4,065	117
Latvia . . . . .	...	...	...	...	12,011	12,511	2)	15	41,313	24
Lithuania	4,365	2,873	0	0	8,613	7,319	0	0	19,191	0
Netherlands	2,416	7,646	552	381	18,521	39,701	8,360	2,716	72,660	8,887
Poland	714	3,669	7	4	2,262	11,881	106	20	27,470	31
Sweden	2,665	3,333	0	0	15,197	23,168	13	4	43,162	40
U. S. S. R. . . . .	...	...	—	—	...	...	—	—	68,024	—
Argentina	3,713	1,030	—	—	32,829	27,990	—	—	51,132	—
India	18	20	51	20	141	185	234	165	364	344
Syria and Lebanon . . . . .	...	...	...	...	161	573	769	121	1,817	344
Australia	12,771	8,830	0	0	104,603	93,981	0	0	208,924	0
New Zealand	13,534	14,978	—	—	112,524	113,730	—	—	220,814	—
<i>Importing Countries:</i>										
Germany	4	22	10,809	17,866	143	143	78,055	102,586	269	220,950
Belgium	271	267	2,090	3,646	1,226	1,270	29,366	18,805	2,756	41,562
Spain	2	11	2	11	22	51	24	33	88	121
France	705	884	1,790	3,400	4,594	15,016	28,949	11,036	40,836	903,967
Gr. Brit. and N. Irel.	1,437	725	87,689	84,737	29,421	21,832	467,302	446,457	40,228	2,061
Italy	—	—	40	196	—	1,045	3,269	4,178	1,290	6,188
Norway	148	549	203	9	631	1,093	64	79	1,629	379
Switzerland	24	68	46	1,786	2	4	6,788	12,214	23,358	4,107
Czechoslovakia	0	0	558	3,073	26	300	1,880	2,200	661	2,822
Canada	141	1,874	2	743	2,366	1,83	686	730	10,681	1,881
United States	170	157	90	159	765	1,188	322	322	2,008	642
Ceylon	—	—	82	62	—	—	4,136	3,739	—	8,514
Java and Madura . . . . .	—	—	...	...	—	—	2)	66	117	231
Japan . . . . .	—	—	...	...	—	—	2)	1,702	1,854	73
Algeria . . . . .	—	—	...	...	22	26	335	959	77	2,041
Egypt . . . . .	...	...	...	...	302	7	620	476	9	930
Tunis	0	0	93	86	2	2	2	2	2	2
Totals	92,420	98,087	103,988	113,795	570,675	603,848	623,926	635,603	1,323,570	1,281,252
Cheese. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Denmark	1,552	869	18	42	5,886	4,535	86	313	9,383	604
Finland	635	522	2	2	3,395	3,265	9	13	5,776	33
Italy	5,095	6,953	1,060	1,032	33,078	44,229	4,248	5,139	89,032	10,119
Lithuania	132	227	0	0	816	1,060	2	2	2,546	11
Norway	326	227	15	35	1,642	999	123	300	2,840	562
Netherlands	16,766	19,019	79	99	80,696	91,192	527	604	190,460	1,345
Poland	24	227	66	77	498	1,413	293	408	2,884	761
Switzerland	3,867	4,705	386	575	20,373	28,711	2,619	3,093	54,307	8,470
Czechoslovakia	315	580	351	309	3,532	4,094	1,415	1,556	10,981	3,779
Yugoslavia	93	234	11	22	725	1,530	90	128	4,198	243
Canada	4,833	4,079	110	66	9,076	7,813	538	679	84,790	1,446
Australia	212	670	0	2	3,078	3,225	4	15	7,405	24
New Zealand	13,234	11,667	0	0	104,319	111,958	0	2	181,703	4
<i>Importing Countries:</i>										
Germany	271	481	10,044	12,804	2,026	2,983	48,006	58,110	7,372	120,404
Austria	445	785	313	750	1,206	2,884	2,313	3,285	6,232	5,781
Belgium	33	82	4,804	4,614	284	379	21,597	25,127	49,600	49,600
Spain	42	35	190	227	141	148	395	1,750	236	3,867
Irish Free State	0	9	176	179	24	44	1,010	1,171	194	2,687
France	2,152	2,527	5,598	7,145	15,335	17,207	25,005	38,960	33,239	82,810
Gr. Brit. and N. Irel.	569	571	27,064	16,330	3,543	3,532	164,035	163,070	7,346	323,091
Greece	140	2	62	31	62	106	1,135	1,799	190	3,960
Hungary	—	7	0	309	—	68	11	163	110	203
Portugal	—	—	55	66	—	—	218	271	—	842
Sweden	—	—	88	108	—	—	450	778	—	1,691
United States	159	128	3,801	5,121	818	961	25,488	30,243	1,865	61,992
India	0	0	75	55	2	2	423	432	7	886
Java and Madura . . . . .	—	—	...	...	—	—	540	593	—	1,658
Syria and Lebanon . . . . .	—	—	...	...	20	37	2)	240	86	708
Algeria . . . . .	—	—	...	...	75	93	3,871	3,803	172	11,182
Egypt . . . . .	—	—	...	...	112	33	1,817	3,274	73	7,304
Tunis	2	9	159	134	7	20	1,034	1,034	24	2,033
Totals	50,819	54,615	54,527	50,134	290,793	332,521	308,205	344,357	704,265	708,100

2) See notes page 565.

COUNTRIES	JUNE				ELEVEN MONTHS (August 1-June 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Cotton. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
United States	1,951	1,362	95	71	44,355	34,959	580	492	36,391	538
Argentina	110	93	—	—	474	408	—	—	505	—
Brazil	—	—	—	—	181	503	—	—	516	—
India	487	1,043	212	364	6,687	14,030	2,143	1,742	14,881	1,876
Egypt	—	—	—	—	6,757	5,470	0	0	6,669	0
<i>Importing Countries:</i>										
Germany	112	134	485	620	1,521	1,554	7,864	7,879	1,706	8,442
Austria	0	0	31	42	0	0	518	434	0	467
Belgium	24	24	93	148	324	174	1,285	1,576	201	1,713
Denmark	—	—	15	15	—	—	130	132	—	150
Spain	2	2	205	176	24	24	2,183	2,033	24	2,253
Estonia	0	0	9	7	0	0	71	77	0	84
Finland	0	0	15	7	0	0	159	159	0	177
France	15	40	421	390	463	496	3,812	7,862	549	8,137
Gr. Brit. and N. Irel.	90	31	924	745	439	425	11,768	10,417	481	10,959
Greece	0	0	9	18	0	0	183	187	0	225
Hungary	0	0	13	26	0	0	315	269	—	291
Italy	0	0	309	251	0	2	3,796	3,523	2	3,821
Latvia	—	—	—	—	2)	2)	44	55	0	62
Norway	0	0	2	2	0	0	42	46	0	46
Netherlands	0	0	53	86	7	4	822	961	7	1,043
Poland	0	2	97	121	20	22	968	1,349	24	1,444
Portugal	—	—	51	15	—	—	401	306	—	333
Sweden	—	—	57	29	—	—	529	417	—	467
Switzerland	0	0	33	37	4	0	476	560	7	608
Czechoslovakia	11	11	150	172	128	141	1,896	2,200	154	2,365
Yugoslavia	0	0	11	13	0	190	170	170	—	185
Canada	—	—	46	55	—	—	937	979	—	1,021
Japan	—	—	—	—	2)	406	14,868	12,028	534	13,744
Algeria	—	—	—	—	4	22	2)	2)	24	—
Totals	2,802	2,742	3,336	3,410	62,429	58,640	55,975	55,855	62,675	60,454
Wool. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Irish Free State	377	412	60	97	7,776	5,571	675	633	7,965	752
Hungary	214	1,894	88	73	1,442	3,922	1,038	1,473	6,931	1,612
Argentina	53,586	22,441	—	—	262,739	285,548	—	—	303,231	—
Chile	—	476	—	—	23,625	3,492	—	—	4,266	—
India	1,140	4,528	384	717	30,605	33,667	4,079	3,545	28,455	—
Syria and Lebanon	—	—	—	—	2,795	6,303	622	2,747	41,806	4,857
Algeria	—	—	—	—	4,592	11,947	895	648	9,315	3,944
Egypt	—	—	—	—	1,071	2,293	0	11	16,835	1,371
Un. of S. Africa	—	—	—	—	268,672	261,897	0	53	3,752	11
Australia	26,114	33,424	95	238	3,874	4,030	1,111	476	269,750	30
New Zealand	4,416	3,254	0	4	729,527	704,351	1,989	1,905	4,830	533
Italy	—	—	—	—	48,396	36,645	1,989	53	749,742	2,337
Germany	216	955	23,105	39,813	173,736	165,446	2	2	43,923	0
Austria	679	787	2,527	73	33,662	30,688	4	0	172,382	0
Belgium	22	18	1,332	747	—	—	—	—	44,675	0
Denmark	4,325	265	13,631	11,354	—	—	—	—	—	—
Spain	1,671	1,711	212	320	—	—	—	—	—	—
Finland	2	4	430	196	—	—	—	—	—	—
France	3,516	3,896	41,189	39,712	—	—	—	—	—	—
Gr. Brit. and N. Irel.	34,227	40,475	80,398	75,207	—	—	—	—	—	—
Greece	71	73	123	278	—	—	—	—	—	—
Italy	75	134	18,572	7,643	—	—	—	—	—	—
Norway	90	432	1,116	758	—	—	—	—	—	—
Netherlands	86	77	212	104	—	—	—	—	—	—
Poland	106	216	269	549	—	—	—	—	—	—
Sweden	73	20	818	551	—	—	—	—	—	—
Switzerland	55	179	2,857	3,849	—	—	—	—	—	—
Czechoslovakia	—	—	1,025	1,109	—	—	—	—	—	—
Yugoslavia	9	31	2,026	677	—	—	—	—	—	—
Canada	82	110	4,085	3,721	—	—	—	—	—	—
United States	7	0	209	99	—	—	—	—	—	—
Japan	172	71	816	494	—	—	—	—	—	—
Tunis	37	209	2,696	16,813	—	—	—	—	—	—
Totals	131,454	116,526	199,421	209,588	1,972,109	1,952,886	2,030,682	2,104,837	2,150,518	2,405,403

a) = Wool, greasy; b) = Wool, scoured. — 2) See notes page 565.

COUNTRIES	JUNE		TWELVE MONTHS (July 1-June 30)		TWELVE MONTHS (July 1- June 30)	COUNTRIES	JUNE		TWELVE MONTHS (July 1-June 30)		TWELVE MONTHS (July 1- June 30)
	1932	1931	1931-32	1930-31	1930-31		1932	1931	1931-32	1930-31	1930-31
Coffee. — (Thousand lb.).						Tea. — (Thousand lb.).					
EXPORTS.						EXPORTS.					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Brazil . . . . .	...	...	1,906,255 ^a	2,248,784	—	Ceylon	26,372	27,128	245,982	247,397	—
India	1,881	1,340	17,926	23,490	—	India	21,546	18,325	342,946	347,401	—
Java and Madura .	3,860	3,007	51,725	38,105	—	Java and Madura .	13,841	14,077	163,312	158,936	—
						Japan . . . . .	...	...	21,832 ^a	21,795	—
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	99	141	1,649	1,345	—	Belgium	2	2	22	31	—
Belgium	97	745	9,643	5,090	—	Irish Free State .	0	7	258	185	—
France	0	0	15	60	—	France	0	2	57	35	—
Netherlands	1,402	1,135	15,260	19,059	—	Gr. Brit. and N. Irel.	4,028	6,638	77,887	87,052	—
Portugal	119	44	1,270	553	—	Netherlands	7	11	134	115	—
Switzerland	15	31	613	399	—	United States	13	33	474	476	—
Canada	2	4	42	55	—	Syria and Lebanon . .	...	...	18 ^a	13	—
United States	1,208	3,492	22,814	24,293	—	Algeria . . . . .	...	...	46 ^a	20	—
Ceylon	0	0	11	227	—	Union of S. Africa . .	...	...	117 ^a	62	—
Syria and Lebanon . .	...	...	4 ^a	53	—	Australia	46	95	549	851	—
Australia	2	4	53	53	—	New Zealand . . . . .	...	...	73 ^a	101	—
Totals	—	—	—	—	—	Totals	65,855	66,318	853,707	864,470	—
IMPORTS.						IMPORTS.					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	22,459	21,400	307,608	349,956	—	Germany	646	659	10,494	12,741	—
Austria	1,817	4,184	16,998	23,268	—	Austria	99	238	1,131	1,409	—
Belgium	4,564	12,165	114,672	123,437	—	Belgium	37	60	661	639	—
Bulgaria	119	137	1,658	1,660	—	Denmark	150	90	498	1,296	—
Denmark	4,758	6,404	66,439	63,220	—	Spain	18	24	322	282	—
Spain	3,673	4,348	53,912	68,795	—	Estonia	0	13	172	146	—
Estonia	9	29	298	509	—	Irish Free State . . .	1,129	1,373	25,122	24,346	—
Irish Free State . . .	40	22	522	525	—	Finland	11	15	249	260	—
Finland	3,047	3,179	32,481	40,142	—	France	289	282	3,419	3,536	—
France	35,199	40,157	426,285	406,168	—	Gr. Britain and N. I.	...	...	...	...	—
Gr. Britain and N. I.	...	...	...	...	—	Ireland	33,640	30,823	550,364	541,616	—
Ireland	2,857	3,364	37,516	37,858	—	Greece . . . . .	...	31	699	644	—
Greece	514	990	13,010	12,959	—	Hungary	22	37	562	650	—
Hungary	494	575	6,041	7,568	—	Italy	33	31	333	326	—
Italy	7,941	7,692	93,393	98,448	—	Latvia . . . . .	...	...	119 ^a	157	—
Latvia . . . . .	...	...	351 ^a	333	—	Lithuania . . . . .	...	4	119	179	—
Lithuania	22	24	445	478	—	Norway	20	37	386	388	—
Norway	2,848	3,256	38,189	37,690	—	Netherlands	2,842	2,945	30,836	31,024	—
Netherlands	7,705	7,710	103,379	100,483	—	Poland	306	344	4,317	4,614	—
Poland	1,237	1,462	17,185	17,589	—	Portugal	24	40	648	597	—
Portugal	463	972	10,657	11,413	—	Sweden	53	71	858	928	—
Sweden	6,087	9,288	107,586	100,829	—	Switzerland	157	139	1,792	1,731	—
Switzerland	2,875	2,956	34,286	31,603	—	Czechoslovakia	68	64	1,737	1,473	—
Czechoslovakia	1,932	2,784	32,386	29,026	—	Yugoslavia	22	22	622	628	—
Yugoslavia	1,140	1,490	17,434	20,862	—	Canada	1,105	1,043	39,031	43,147	—
Canada	2,597	2,767	31,963	33,689	—	United States	7,277	6,953	90,460	87,151	—
United States	142,404	136,910	1,628,986	1,728,593	—	Chile . . . . .	...	...	4,691 ^a	4,773	—
Chile . . . . .	...	...	8,752 ^a	9,235	—	Syria and Lebanon . . .	...	...	571 ^a	340	—
Ceylon	2	174	3,572	3,148	—	Turkey	117	146	1,504	2,138	—
Japan . . . . .	...	...	5,487 ^a	4,004	—	Algeria . . . . .	...	...	2,335 ^a	2,672	—
Syria and Lebanon . . .	...	...	2,185 ^a	2,449	—	Egypt . . . . .	...	...	13,001 ^a	12,189	—
Turkey	1,127	1,221	8,841	12,853	—	Tunis	240	340	6,669	2,952	—
Algeria . . . . .	...	...	28,019 ^a	28,266	—	Union of S. Africa . . .	...	...	11,942 ^a	12,670	—
Egypt . . . . .	...	...	14,972 ^a	13,592	—	Australia	3,977	3,563	44,899	46,441	—
Tunis	247	271	3,190	3,036	—	New Zealand . . . . .	...	...	9,775 ^a	10,549	—
Un. of S. Africa . . . .	...	...	23,856 ^a	28,226	—						
Australia	571	340	3,510	2,619	—						
New Zealand . . . . .	...	...	412 ^a	390	—						
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
India	46	35	106	4,090	—	India	205	397	6,486	6,232	—
						Java and Madura . . . .	...	...	9,310 ^a	11,028	—
Totals	258,844	276,306	3,296,582	3,459,134	—	Totals	52,493	49,793	876,134	871,892	—

^a See notes page 565.

COUNTRIES	JUNE		NINE MONTHS (Oct. 1-June 30)		TWELVE MONTHS (Oct. 1-Sept. 30)	COUNTRIES	JUNE		ELEVEN MONTHS (August 1-June 30)		TWELVE MONTHS (August 1-July 31)
	1932	1931	1931-32	1930-31	1930-31		1932	1931	1931-32	1930-31	1930-31
Cacao. — (Thousand lb.).						Total Wheat and Flour (*) (Thousand centals).					
EXPORTS.						a) NET EXPORTS.					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Grenada	300	1,023	8,572	8,854	9,905	Bulgaria	258	403	6,512	2,996	3,527
Dominican Republ.	9,511	12,690	30,459	35,140	61,328	Spain	3)	11	3)	95	104
Brazil . . . . .	...	...	2) 136,464	2) 92,965	146,469	Hungary	756	800	10,626	10,476	10,591
Ecuador . . . . .	...	...	2) 22,218	2) 24,597	33,076	Lithuania	2	2	53	569	567
Trinidad	3,907	9,716	32,931	53,476	61,569	Poland	194	143	1,726	2,432	2,586
Venezuela . . . . .	...	...	2) 20,622	2) 30,263	45,076	Rumania	223	624	22,267	9,409	9,608
Ceylon	364	527	8,669	7,156	8,360	U. S. S. R. . . . .	...	...	15) 37,426	15) 50,067	5) 67,735
Java and Madura . .	168	300	1,484	1,587	3,073	Yugoslavia	529	2	8,814	2,959	3,362
Cameroon . . . . .	...	...	2) 25,303	2) 22,851	30,126	Canada	11,001	13,744	110,692	146,083	154,489
Ivory Coast . . . . .	...	...	2) 50,601	2) 41,659	43,363	United States	4,753	6,142	63,264	56,209	65,519
Gold Coast	14,165	22,582	413,739	452,465	486,374	Argentina	5,174	9,989	82,389	69,878	74,466
Nigeria . . . . .	...	...	2) 104,396	2) 103,080	116,385	Chile . . . . .	...	...	2) 31	2) 556	567
St. Thomas and Prince Is.	2,028	2,324	19,469	19,015	24,879	British India	82	3)	1,069	3)	3)
Togoland . . . . .	...	...	2) 13,889	2) 15,093	16,400	Turkey	26	15	917	269	282
						Algeria . . . . .	...	...	2) 2,097	2) 6,054	5,719
						Tunis	1,704	1,340	3,635	2,524	3,481
						Australia	6,843	10,033	87,511	82,984	90,379
Totals	31,325	50,330	901,163	924,506	1,107,173	Totals	31,545	43,248	439,029	443,560	492,982
IMPORTS.						b) NET IMPORTS.					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	9,275	10,765	143,314	147,593	180,001	Germany	4,321	2,601	10,518	16,039	18,689
Austria	1,093	829	10,086	9,160	10,662	Austria	917	1,874	7,529	8,636	10,150
Belgium	1,550	1,409	18,623	21,112	25,532	Belgium	3,098	3,009	25,309	25,882	29,125
Bulgaria	112	24	1,151	650	774	Denmark	725	1,021	9,817	6,358	6,894
Denmark	928	805	6,665	6,625	7,685	Spain	1,362	4)	1,499	4)	4)
Spain	2,198	1,548	19,716	20,190	22,472	Estonia	9	35	262	452	485
Estonia	13	31	437	340	478	Irish Free State . . .	981	844	10,807	10,338	11,286
Irish Free State . .	35	66	933	1,620	1,786	Finland	185	240	2,324	2,721	2,956
Finland	4	13	132	176	220	France	6,673	4,777	41,886	29,471	36,493
France	7,458	9,387	70,486	70,394	90,116	Gr. Brit. and N. Irel.	11,316	9,952	132,505	120,556	134,811
Gr. Brit. and N. Irel.	8,483	7,751	108,556	107,310	141,747	Greece	1,177	1,775	13,285	13,375	14,454
Greece	44	141	2,590	1,878	2,480	Italy	4,021	6,444	18,281	46,910	48,811
Hungary	278	452	4,039	4,365	5,432	Latvia . . . . .	...	...	2) 395	2) 833	935
Italy	1,495	1,155	11,962	13,314	16,619	Norway	397	487	4,815	4,597	4,985
Latvia . . . . .	...	...	2) 1,248	2) 1,215	1,724	Netherlands	1,801	1,825	16,092	19,414	20,858
Lithuania	64	33	498	560	708	Portugal	137	785	873	1,294	1,607
Norway	106	346	4,597	2,952	4,705	Sweden	672	115	3,805	2,762	2,939
Netherlands	3,148	7,249	76,626	127,079	147,201	Switzerland	5) 882	5) 734	5) 11,645	5) 10,075	5) 11,094
Poland	1,175	1,034	8,898	9,916	12,313	Czechoslovakia . . .	1,140	822	13,330	9,581	10,302
Sweden	522	752	9,365	7,262	9,092	Ceylon	29	55	511	540	597
Switzerland	919	838	10,050	22,095	23,803	India	4)	322	4)	2,751	3,062
Czechoslovakia . .	1,440	2,086	16,599	14,760	19,237	Indo-China	20	26	483	527	571
Yugoslavia	110	225	1,144	1,230	1,475	Japan . . . . .	...	...	2) 10,265	2) 8,483	10,964
Canada	1,466	1,184	13,345	13,113	15,371	Java and Madura . .	...	...	2) 1,321	2) 1,120	1,367
United States . . .	16,361	33,358	335,657	304,982	406,670	Syria and Lebanon . .	...	...	2) 42	2) 82	101
Australia	1,486	994	8,618	5,176	7,308	Egypt . . . . .	...	...	2) 3,915	2) 5,018	5,763
New Zealand . . . .	...	...	2) 1,076	2) 1,030	1,504	Union of S. Africa .	...	...	2) 939	2) 1,744	1,938
						New Zealand . . . . .	...	...	2) 346	2) 379	437
Totals	59,763	82,475	886,421	916,097	1,156,113	Totals	39,863	37,743	342,999	349,938	391,674

*) Flour reduced to grain on the basis of the coefficient: 1,000 centals of flour — 1,333.33 centals of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 31 December. — 2) Data up to 31 May. — 3) See Net Imports. — 4) See Net Exports. — 5) Wheat only.

STOCKS

STOCKS OF CEREALS IN COMMERCIAL ELEVATORS AND MILLS IN GERMANY 1).

PRODUCTS	Last day of month			Last day of month		
	July 1932	June 1932	May 1932	July 1932	June 1932	May 1932
	1,000 centals			1,000 bushels or barrels		
WHEAT:						
Grain	3,446	5,935	8,905	5,743	9,891	14,841
Flour for bread	2,017	2,549	2,606	1,029	1,300	1,330
TOTAL 2)	6,136	9,332	12,380	10,225	15,533	20,634
RYE:						
Grain	3,534	5,064	7,608	6,311	9,043	13,586
Flour for bread	569	1,023	1,235	290	522	630
TOTAL 2)	4,292	6,429	9,255	7,664	11,479	16,526
BARLEY	1,561	944	1,561	3,252	1,966	3,252
OATS	536	1,049	1,442	1,674	3,279	4,506

1) See note under the corresponding table in the Bulletin for March, at page 218. — 2) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of flour = 1,333.33 centals of grain (1,000 barrels of flour = 4,355.55 bushels of wheat or 4,584.80 bushels of rye).

TOTAL STOCKS OF HOME GROWN CEREALS IN CANADA ON 31 JULY.

PRODUCTS	1932	1931	1930	1929	1928	1932	1931	1930	1929	1928
	1,000 centals					1,000 bushels				
Wheat	78,569	80,029	66,445	62,629	46,576	130,949	133,382	110,741	104,383	77,626
Rye	3,013	8,074	5,148	2,364	1,167	5,381	14,417	9,192	4,222	2,084
Barley	3,438	14,131	11,641	5,290	1,661	7,162	29,440	24,232	11,021	3,460
Oats 1)	10,190	21,546	6,870	15,356	9,726	31,845	63,370	20,207	45,165	28,605

1) For oats the bushel is of 32 lbs.

CARRY-OVER OF WHEAT AND WHEAT FLOUR IN THE UNITED STATES ON 1st JULY 1).

LOCATION	1932	1931	1930	1932	1931	1930
	1,000 centals			1,000 bushels		
On farms	43,155	19,119	28,450	71,925	31,865	47,417
In interior mills and elevators	25,090	18,151	36,100	41,817	30,252	60,166
Commercial wheat in store	101,043	122,380	65,596	168,405	203,967	109,327
In merchant mills and elevators 2)	38,514	13,085	28,002	63,856	21,808	46,670
In transit to merchant mills and bought to arrive 2)	5,957	7,319	8,824	9,929	12,198	14,706
Stored for others by merchant mills	4,036	11,047	7,500	6,726	18,413	12,500
TOTAL U. S. wheat as grain	217,595	191,101	174,472	362,658	318,503	290,786
Flour (in terms of wheat) in merchant mills and elevators 2)	9,502	8,258	10,639	15,837	13,763	17,731
TOTAL U. S. wheat and flour (in terms of grain)	227,097	199,359	185,111	378,495	332,266	308,517
Canadian wheat in store in bond in the U. S.	2,719	3,613	9,861	4,532	6,021	16,435
TOTAL WHEAT IN THE U. S.	229,816	202,972	194,972	383,027	338,287	324,952

1) Incomplete data: wheat in transit on rail or water with other destination than to merchant mills and attached elevators, and wheat flour in other positions than in merchant mills and elevators are not included. — 2) Raised to represent wheat and wheat flour in all merchant mills and elevators. See also special table, on stocks in these mills, etc.

QUANTITY OF WHEAT EXPORTABLE FROM ARGENTINA.

According to a Government communication there were in the country at the end of July 1932 23,533,000 centals (39,221,000 bushels) of wheat available for export, against 35,900,000 c. (59,833,000 b.) and 21,385,000 c. (35,641,000 b.) respectively at the corresponding dates in 1931 and 1930.

STOCKS OF BARLEY AND OATS REMAINING ON FARMS IN THE UNITED STATES ON 1st AUGUST.

YEAR	Barley			Oats		
	% of previous harvest	1000 centals	1000 bushels	% of previous harvest	1000 centals	1000 bushels
1928	2.9	3,720	7,751	3.6	13,541	42,315
1929	4.8	8,194	17,071	6.0	27,781	86,816
1930	4.1	6,026	12,554	5.4	21,429	66,965
1931	4.4	6,401	13,544	5.7	23,219	72,560
1932	3.0	2,856	5,951	5.9	21,118	65,993

WHEAT AND WHEAT-FLOUR STOCKS HELD BY COMMERCIAL MILLS IN THE UNITED STATES (1).

Specification and situation	Last day of month					Last day of month				
	June 1932	March 1932	Dec. 1931	June 1931	June 1930	June 1932	March 1932	Dec. 1931	June 1931	June 1930
	1,000 centals					1,000 bushels or barrels				
Wheat held by mills and mill elevators attached to mills	36,196	44,122	54,571	12,601	26,266	60,326	73,537	90,952	21,001	43,776
Wheat in transit to merchant mills and bought to arrive	5,659	5,173	6,485	7,048	8,276	9,432	8,621	10,808	11,746	13,794
Wheat-flour in mills and warehouses, and in transit, sold and unsold	6,254	7,679	8,087	5,547	6,929	3,191	3,918	4,126	2,830	3,535
TOTAL (2)	50,734	60,344	72,691	27,629	44,510	84,556	100,753	121,152	46,048	74,184

(1) Partial census, including mills accounting for over 90 % of the total capacity of all commercial mills; see article about cereal stocks on page 502 of Crop Report for August 1931. — (2) Including flour in terms of wheat.

COMMERCIAL CEREALS IN STORE IN CANADA AND THE UNITED STATES.

SPECIFICATION	Friday or Saturday nearest to 1st of month					Friday or Saturday nearest to 1st of month				
	August 1932	July 1932	June 1932	August 1931	August 1930	August 1932	July 1932	June 1932	August 1931	August 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Canadian in Canada	71,237	80,424	85,229	63,119	51,878	118,728	134,040	142,049	105,199	86,463
U. S. in Canada	9,218	9,537	10,952	13,760	2,377	15,364	15,895	18,254	22,933	3,961
U. S. in the United States	107,432	100,991	104,465	140,140	97,138	179,053	168,318	174,109	233,567	161,897
Canad. in the United States	2,824	2,719	4,322	3,747	9,881	4,707	4,532	7,203	6,244	16,468
Total	190,711	193,671	204,968	220,766	161,274	317,852	322,785	341,615	367,943	268,789
RYE:										
Canadian in Canada	2,891	3,957	5,400	6,774	4,211	5,163	7,066	9,642	12,096	7,519
U. S. in Canada	90	136	127	1,004	2,106	160	242	226	1,792	3,761
U. S. in the United States	5,016	5,008	5,272	5,509	6,761	8,958	8,942	9,415	9,838	12,073
Canad. in the United States	194	279	336	1	105	347	498	600	2	187
Total	8,191	9,380	11,135	13,288	13,183	14,628	16,748	19,883	23,728	23,540
BARLEY:										
Canadian in Canada	1,699	2,085	3,083	4,872	8,655	3,540	4,344	6,423	10,151	18,031
U. S. in Canada	0	3	43	22	383	1	6	89	45	797
U. S. in the United States	1,655	1,340	1,442	3,153	3,238	3,448	2,791	3,004	6,568	6,746
Canad. in the United States	0	27	136	57	883	1	57	283	119	1,839
Total	3,354	3,455	4,704	8,104	13,159	6,990	7,198	9,799	16,883	27,413
OATS: (1)										
Canadian in Canada	2,129	1,924	2,191	2,960	2,274	6,652	6,013	6,846	9,248	6,689
U. S. in Canada	49	43	54	70	376	153	134	169	220	1,106
U. S. in the United States	4,399	3,403	3,604	2,567	2,913	13,748	10,635	11,262	8,021	9,106
Canad. in the United States	0	0	0	4	47	0	0	0	13	146
Total	6,577	5,370	5,849	5,601	5,610	20,553	16,782	18,277	17,502	17,043
MAIZE:										
U. S. in Canada	253	402	621	109	76	451	717	1,109	195	135
Of other origin in Canada	552	707	660	260	683	985	1,263	1,178	463	1,220
U. S. in the United States	6,276	9,077	11,596	4,683	1,916	11,207	16,209	20,708	8,363	3,421
Total	7,081	10,186	12,877	5,052	2,675	12,643	18,189	22,995	9,021	4,776

x) For oats the bushel is of 32 lbs.

QUANTITY OF WHEAT EXPORTABLE FROM AUSTRALIA.

According to a Government communication there were in the country on 1 August 1932 19,594,000 centals (32,657,000 bushels) of wheat available for export, against 19,800,000 c. (33,000,000 b.) on 1 August 1931 and 23,000,000 c. (39,000,000 b.) on 1 August 1930.

QUANTITIES OF CEREALS ON OCEAN PASSAGE WITH FIRST DESTINATION FOR EUROPE.

PRODUCTS	Saturday nearest to 1st of month					Saturday nearest to 1st of month				
	August 1932	July 1932	June 1932	August 1931	August 1930	August 1932	July 1932	June 1932	August 1931	August 1930
	1,000 centals					1,000 bushels				
Wheat (and flour in terms of wheat)	18,826	27,101	37,886	22,738	23,534	31,376	45,168	63,144	37,896	39,224
Rye ;	1,186	1,032	1,603	408	43	2,117	1,843	2,863	729	77
Barley.	1,620	1,740	2,348	2,184	2,016	3,375	3,625	4,892	4,550	4,200
Oats	1,040	650	2,906	1,402	918	3,250	2,030	9,080	4,380	2,870
Maize	20,846	20,832	18,547	26,626	15,739	37,226	37,200	33,120	47,546	28,106

Authority: *Broomhall's Corn Trade News*.

GRAIN AND FLOUR STOCKS AT THE PORTS OF GREAT BRITAIN AND IRELAND 1).

PRODUCTS	First of the month					First of the month				
	August 1932	July 1932	June 1932	August 1931	August 1930	August 1932	July 1932	June 1932	August 1931	August 1930
	1000 centals					1000 bushels				
WHEAT:										
Grain	5,712	5,688	6,048	5,640	3,144	9,520	9,480	10,080	9,400	5,240
Flour as grain	840	888	720	744	744	1,400	1,480	1,200	1,240	1,240
TOTAL	6,552	6,576	6,768	6,384	3,888	10,920	10,960	11,280	10,640	6,480
Barley.	400	700	680	640	740	833	1,458	1,417	1,333	1,542
Oats	480	576	432	784	736	1,500	1,800	1,350	2,450	2,300
Maize	2,496	2,448	2,256	1,536	1,272	4,457	4,371	4,029	2,743	2,271

Authority: *Broomhall's Corn Trade News*.

1) Imported cereals.

STOCKS OF COTTON ON HAND IN THE UNITED STATES.

LOCATION	Last day of the month					Last day of the month				
	July 1932	June 1932	May 1932	July 1931	July 1930	July 1932	June 1932	May 1932	July 1931	July 1930
	1000 centals					1000 bales (counting round as half bales)				
In consuming establishments	5,990	6,502	7,191	4,818	5,754	1,219	1,323	1,463	996	1,183
In public storage and at compresses	32,973	35,192	37,432	21,914	14,021	6,703	7,154	7,609	4,524	2,877
TOTAL	38,963	41,694	44,623	26,732	19,775	7,922	8,477	9,072	5,520	4,060

STOCKS OF COTTON AT BOMBAY AND AT ALEXANDRIA.

PORTS	Thursday nearest to 1st of month					Thursday nearest to 1st of month				
	August 1932	July 1932	June 1932	August 1931	August 1930	August 1932	July 1932	June 1932	August 1931	August 1930
	1000 centals					1000 bales (1 bale = 478 lbs.)				
Bombay 1)	3,152	3,356	3,396	2,805	3,680	659	702	710	587	770
Alexandria	3,745	4,009	4,378	4,414	3,542	783	839	916	923	741

Authorities: *East Indian Cotton Ass.* and *Commission de la Bourse de Minet-el-Bassal*.
1) Stocks held by exporters, dealers and mills.

STOCKS OF COTTON IN EUROPE.

COUNTRIES, PORTS, DESCRIPTIONS	Thursday or Friday nearest to 1st of month					Thursday or Friday nearest to 1st of month				
	August 1932	July 1932	June 1932	August 1931	August 1930	August 1932	July 1932	June 1932	August 1931	August 1930
	1000 centals					1000 bales (1 bale = 478 lbs.)				
<i>Great Britain:</i>										
American	1,682	1,931	2,008	2,033	1,403	352	404	420	425	294
Argentine, Brazil- ian, etc.	90	53	28	195	441	19	11	6	41	92
Peruvian, etc. . . .	208	177	137	229	312	43	37	29	48	65
East Indian, etc.	329	392	411	745	308	69	82	86	156	64
Egyptian, Sudan- ese	1,547	1,652	1,823	1,304	1,391	324	346	381	273	291
Other 1)	111	119	113	233	300	23	25	24	49	63
TOTAL	3,967	4,324	4,520	4,739	4,155	830	905	946	992	869
<i>Bremen:</i>										
American	1,968	1,582	1,579	1,628	1,173	307	330	330	341	245
Other	29	29	27	67	61	6	7	6	14	13
TOTAL	1,497	1,611	1,606	1,695	1,234	313	337	336	355	258
<i>Le Havre:</i>										
American	677	799	801	1,225	529	142	167	168	256	111
Other	62	72	61	167	201	13	15	13	35	42
TOTAL	739	871	862	1,392	730	155	182	181	291	153
<i>Total Continent 2):</i>										
American	2,828	3,108	3,217	3,303	1,946	592	650	673	691	407
Argentine, Brazil- ian, etc.	30	35	30	105	82	6	7	6	22	17
E. Indian, Austral- ian, etc.	70	74	66	206	231	15	15	14	43	49
Egyptian	127	127	123	77	96	26	27	26	16	20
W. Indian, W. Afri- can, E. Afri- can, etc.	32	32	32	44	133	7	7	7	9	28
TOTAL	3,087	3,376	3,468	3,735	2,488	646	706	726	781	521

Authority: *Liverpool Cotton Ass.*

1) Includes: W. Indian, etc., E. African, etc.; W. African, and Australian. — 2) Includes Bremen, Havre, and other Continental ports

MONTHLY REVIEW OF PRICES 1)

PRODUCTS, MARKETS AND DESCRIPTION	AVERAGE 2)									
	19	12	5	29	22					Commercial Season
	August 1932	August 1932	August 1932	July 1932	July 1932	July 1932	August 1932	August 1932	August 1932	
										1931-32 1930-31
WHEAT.										
Budapest (a): Tisza region (78 80 kg. p. hl.; pengő p. quintal)	3) 14.40	3) 13.60	3) 13.57	13.15	13.25	9.70	18.65	12.28	15.34	
Braila: Good quality (lei p. quintal)	3) 430	3) n. 400	3) n. 400	3) 350	3) 300	314	282	492	305	351
Winnipeg: No. 1 Manitoba (cents p. 60 lbs.)	55 1/8	57 1/4	57 3/8	58 1/8	54 3/4	55 3/8	52 3/8	92 3/8	59 3/4	64 1/4
Chicago: No. 2 Hard Winter (cents p. 60 lbs.)	51 1/8	55	52 1/8	52 3/8	48 3/8	49 1/8	50 7/8	89 3/8	54 3/4	78
Minneapolis: No. 1 Northern (cents p. 60 lbs.)	56 3/8	55 3/8	55 3/8	54 1/8	51	52 1/8	63 1/8	89 7/8	66 7/8	77 7/8
New-York: No. 2 Hard Winter (cents p. 60 lbs.)	61 7/8	62 3/8	61 1/2	3) 61	3) 57 7/8	3) 60 1/8	61 1/2	97 7/8	66 7/8	n. 91 1/8
Buenos Aires (b): Barletta (80 kg. p. hectol.; pesos paper p. quintal)	7.05	7.20	7.05	7.10	6.55	6.67	5.75	9.93	6.68	6.83
Karachi: Karachi white, 2 % barley, 1 1/2 % dirt (rupees p. 656 lbs.)	27-10-0	28-14-0	27-13-0	26-12-0	25-0-0	25-5-7	17-8-6	27-5-5	21-15-9	19-15-2
Berlin: Home-grown (Reichsmarks p. quintal)	3) 20.50	3) 20.80	3) 22.30	3) 22.00	25.00	21.07	25.19	23.63	26.00	
Hamburg, c. i. f. (Reichsmarks p. quintal):										
No. 3 Manitoba	4) 9.60	4) 9.69	4) 9.76	4) 9.84	4) 8.74	4) 8.57	4) 10.60	16.50	4) 10.38	4) 12.65
No. 2 Hard Winter	9.69	10.24	9.59	n. q.	n. q.	5) 9.20	8.58	15.96	n. 9.32	n. 13.00
Barusso (79 kg. p. hectol.)	9.01	9.01	6) 8.74	6) 8.69	6) 8.40	6) 8.42	8.25	7) 16.30	8.78	11.10
Antwerp (Belgian francs p. quintal):										
Home grown	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	97.00	n. 159.00	83.10	95.50
No. 2 Hard Winter, Gulf	5) 80.00	5) 83.00	5) 81.00	5) 73.50	5) 75.00	5) 75.70	73.00	142.00	5) 81.75	112.50
Paris: Home-grown, 75-77 kg. (francs p. quintal)	3) 125.00	3) 120.25	3) 125.00	171.35	162.50	160.47	162.45	168.05	167.10	175.00
London: Home-grown (shillings p. 504 lbs.)	3) 25/-	27/6	28/-	28/6	28/6	28/3	27/-	36/6	26/5	27/1
London and Liverpool c. i. f., shipping current month (shillings p. 480 lbs.) 8):										
South Russian (on sample)	n. q.	27/3	25/9	9) 25/10	9) 23/6	9) 24/1	17/7	35/6	22/3	23/7
No. 3 Manitoba	26/6	26/10 1/2	25/9	26/9	23/10 1/2	24/2	19/8	34/11	25/9	25/4
No. 2 Hard Winter	27/1 1/2	28/-	26/6	27/3	24/7 1/2	25/3	19/-	34/2	25/3	26/4
White Pacific	n. q.	n. q.	27/-	10) 26/9	10) 24/6	10) 25/3	19/2	34/6	26/5	26/7
Rosafé (63 1/2 lbs.), afloat	11) 26/9	11) 26/9	11) 26/3	11) 26/3	11) 24/6	11) 24/7	12) 17/4	13) 35/1	23/8	23/5
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	35/4	n. q.	27/-
Australian	27/9	28/-	26/9	27/-	24/3	24/5	19/6	36/8	25/9	25/7
Milan (a): Home-grown, soft (lire p. quintal)	99.50	98.00	96.50	3) 96.00	3) 96.00	3) 98.60	88.60	126.50	106.20	109.10
Genoa c. i. f. (shillings p. metric ton): La Plata	14)n. 2.18	14)n. 2.28	14)n. 2.22	n. q.	n. q.	n. q.	90/6	n. 151/-	14)n. 2.21	110/-
RYE.										
Budapest (a): Home-grown (pengő p. quintal)	3) 15.60	3) 15.90	3) 16.40	3) 16.00	18.80	18.11	16.34	16.74	19.00	17.18
Berlin: Home-grown (Reichsmarks per quintal)	n. q.	n. q.	n. q.	7.12	6.91	6.98	n. 6.71	n. q.	8.36	n. 7.65
Hamburg c. i. f.: La Plata, 74-75 kg. (R. M. p. quintal)	32 1/2	34	33 1/2	30 1/2	30 1/2	31 3/8	39 3/8	59 3/8	42 1/2	42 1/8
Minneapolis: No. 2 (cents p. 56 lbs.)	4.35	5.10	5.20	5.30	5.65	5.94	4.34	5.63	5.13	4.45
Groningen (c): Home-grown (florins p. quintal)										
BARLEY.										
Braila: Average quality (lei p. quintal)	193	207	220	216	210	15) 227	214	261	263	232
Winnipeg: No. 4 Western (cents p. 48 lbs.)	31 1/8	33 1/2	32 1/4	32 1/4	32 3/4	32 3/4	29 3/4	35 3/8	34 7/8	26 1/8
Chicago: Feeding (cents p. 48 lbs.)	24	26	28	28 1/2	25	29 3/8	41 1/4	52 3/4	43 3/4	47 3/8
Berlin: Home-grown fodder (Reichsmarks per quintal)	15.95	16.35	16.50	16.50	16.65	16.48	15.47	18.97	16.41	19.52
Antwerp: Danubian (francs p. quintal)	65.00	67.00	71.00	69.00	70.00	71.40	70.00	87.75	77.25	73.25
London: English malting (shillings p. 448 lbs.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	3) n. 40/-	29/6	39/4	35/8
London and Liverpool, c. i. f., parcels (shillings per 400 lbs.):										
Danubian 3 %	16/9	18/3	n. q.	n. q.	n. q.	n. q.	14/7	16/11	n. q.	15/2
Russian (Azov-Black sea)	17/3	18/3	18/-	9) 18/-	9) 17/-	9) 17/2	14/2	16/8	18/11	14/3
Canadian Western, No. 3	20/3	20/7 1/2	19/7 1/2	20/6	18/10 1/2	19/5	15/3	18/10	20/11	15/11
Californian malting (shillings p. 448 lbs.)	22/-	22/6	22/3	22/-	22/-	22/2	30/4	9) 27/8	33/4	27/8
Groningen (c): Home-grown winter (fl. p. quintal)	4.60	4.80	5.65	6.00	6.40	6.42	5.25	5.45	5.87	4.97

a) Saturday prices. — b) Thursday prices. — c) Prices of preceding Tuesday.

1) All quotations are, unless otherwise stated, for spots. — 2) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 3) New crop. — 4) No. 2 Manitoba. — 5) No. 1 Hard Winter. — 6) 80 Kg. p. hl. — 7) 78 Kg. p. hl. — 8) German (on sample; August-September): 19 August; 23/3; 5 August; 22/9; 29 July; 22/9; 22 July; 21/-; July average: 21/6. — 9) New crop; shipping August-September. — 10) Shipping August. — 11) 64 lbs. p. bushel. — 12) 63 lbs. p. bushel. — 13) 62 1/2 lbs. p. bushel. — 14) Price in \$ per quintal. — 15) Rectified prices: 15 July: 215; 8 July: 245.

PRODUCTS, MARKETS AND DESCRIPTION	19	12	5	29	22	AVERAGE (1)			Commercial	
	August 1932	August 1932	August 1932	July 1932	July 1932	July 1932	August 1932	August 1932	1930-31	1931-32
OATS.										
Braila: Good quality (lei p. quintal)	195	200	200	190	210	224	231	262	285	247
Winnipeg: No. 2 White (cents per 34 lbs.)	28 7/8	30 7/8	34 1/8	39 7/8	35 1/8	35 1/8	28 1/4	42	31 3/8	30
Chicago: No. 2 White (cents per 32 lbs.)	17 7/8	18 3/4	n. 19	19	n. 18 1/4	19 3/4	23 3/4	40 1/4	24 1/8	32 7/8
Buenos Aires (a): Current quality (pesos paper p. quintal)	5.60	5.70	5.70	5.75	5.50	5.55	4.14	4.25	5.33	3.58
Berlin: Home grown (Reichsmarks p. quintal)	2) 14.05	2) 13.95	16.65	16.65	16.55	16.15	14.62	18.88	15.10	16.17
Paris: Home grown, black and other (francs p. quintal)	2) 83.75	2) 80.75	2) 81.75	109.50	115.50	113.80	83.45	79.75	101.75	81.00
London: Home grown white (shillings p. 336 lbs.)	2) 20/-	24/-	24/6	24/6	24/6	24/6	20/-	18/90	21/3	18/4
London and Liverpool c. i. f., parcels (shillings p. 320 lbs.):										
Danubian (39-40 lbs.)	3) 14/6	14/3	14/3	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. 12/1
Plate (f. a. q.)	15/1 1/2	15/3	15/-	15/1 1/2	14/1 1/2	14/2	11/-	13/10	14/5	10/9
Chilian Tawny	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	11/5	14/-	n. 16/-	12/-
Milan (b): spot (lire p. quintal):										
Home grown	65.00	65.00	n. 67.50	n. 68.50	n. 68.50	n. 70.50	66.50	76.00	73.60	73.95
Foreign imported	64.50	64.50	64.50	64.50	64.50	62.70	64.00	71.10	65.20	60.40
MAIZE.										
Braila: Danubian (lei p. quintal)	187	192	184	192	191	193	198	384	210	309
Chicago: No. 2 Mixed American (cents p. 56 lbs.)	32 1/4	33 1/4	32 3/4	32 1/4	32 3/4	31 3/8	49 1/4	97 7/8	58 1/4	85 7/8
Buenos Aires (a): Yellow Plate (pesos paper p. quintal)	4.80	5.05	5.00	5.00	4.82	4.79	3.67	6.05	3.82	6.17
Antwerp, spot (Belgian francs p. quintal):										
Bessarabian	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	69.00	110.50	71.25	n. 97.50
Cinquantino	71.00	75.00	73.00	69.00	71.00	70.00	62.00	134.25	81.00	131.25
Yellow Plate	58.00	58.50	59.00	58.00	59.50	58.20	55.00	111.00	65.00	109.25
London and Liverpool, parcels, c. i. f. (shillings p. 480 lbs.):										
Danubian	3) 19/3	20/3	4) 20/-	n. q.	19/6	19/4	16/9	25/6	n. 17/4	24/11
Yellow Plate	18/9	19/7 1/2	19/1 1/2	19/3	18/4 1/2	18/6	13/4	24/11	15/6	25/3
No. 2 White African	20/6	n. q.	n. q.	n. q.	n. q.	n. q.	17/10	24/5	n. 18/1	26/-
Milan (b): Home grown (lire p. quintal)	n. 80.00	n. 80.00	n. 80.00	79.00	77.50	77.20	49.50	76.20	51.90	71.35
RICE (CLEANED).										
Milan (b): Maratelli (lire p. quintal)	173.00	173.00	173.00	173.00	160.50	159.50	97.62	162.00	117.35	152.15
Rangoon: No. 2 Burma (rupees p. 7500 lbs.)	267	260	265	270	270	269 1/2	287	424	249 3/4	393 3/4
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white (25 % broken) . . . . .	...	...	...	...	...	5) ...	8.46	12.10	6.73	11.36
No. 2 Japan (40 % broken) . . . . .	...	...	...	...	...	6) ...	7.95	11.68	6.20	10.89
London (a): c. i. f. (shillings p. 112 lbs):										
Spanish Belloch, No. 3 oilcd.	14/6	14/6	14/3	13/10 1/2	13/7 1/2	13/7	10/8	13/7	11/11	14/1
Italian good, No. 3 oilcd.	n. q.	13/6	15/6	15/-	14/-	14/2	n. q.	15/7	13/7	14/11
American Blue Rose	17/3	16/3	15/6	15/3	15/6	15/7	17/7	21/10	18/7	21/9
Burma, No. 2	7/11	7/11	7/10 1/2	7/10 1/2	7/10 1/2	7/11	8/8	11/6	7/11	10/11
Burma, No. 1	8/3	8 1/4	8/3	8/3	8 1/4	8/2	8/10	11/11	8/1	11/6
Siam, Garden, No. 1	7/8 10/12	7) 8/9	7) 8/9	7) 8/9	7/8 10/12	7) 8/10	9/8	14/11	9/5	14/-
Tokio: Various qualities (yens p. koku) . . . . .	...	...	...	...	...	8) ...	20.84	30.47	18.46	25.57
LINSEED.										
Buenos Aires (a): Current quality (pesos paper p. quintal)	9.40	9.40	9.05	9.10	8.85	8.87	11.31	17.55	10.82	17.19
Antwerp: Plate (Belgian francs p. quintal)	103.00	99.50	99.00	98.50	99.00	97.70	146.00	279.00	146.00	284.25
Hull, c. i. f., Plate (p. sterling p. 1 ton)	8-10-0	8-6-3	8-3-9	8-3-9	7-13-9	7-17-3	8-2-6	15-11-9	8-14-1	15-0-5
London, c. i. f.: Bombay bold (p. st. p. long ton)	10-15-0	11-5-0	10-15-0	10-17-6	10-13-9	10-12-9	10-16-3	18-6-6	11-9-6	17-14-4
Duluth: No. 1 Northern (cents p. 56 lbs.)	101 3/4	101 3/4	99 1/2	97	93 3/4	100	141	207 1/4	148	236

a) Thursday prices. — b) Saturday prices.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) New crop. — 3) Shipping September-October. — 4) Galatz Fox. — 5) 15 July: 5.63; 8 July: 5.47; 1 July: 5.55; 24 June: 5.72; average June: 5.87. — 6) 15 July: 5.30; 8 July: 5.14; 1 July: 5.27; 24 June: 5.30; average June: 5.45. — 7) Siam special. — 8) 15 July: 21.40; 8 July: 21.80; 1 July: 22.10; 24 June: 21.90; average June: 21.80.

PRODUCTS, MARKETS AND DESCRIPTION	19	12	5	29	22	AVERAGE 1)					Commercial Season	
	August	August	August	July	July	July	August	August				
	1932	1932	1932	1932	1932	1932	1931	1930				
COTTONSEED.												
Alexandria: Sakellaridis (piastres per ardeb) . . .	71.0	70.9	65.3	64.0	60.9	60.1	42.3	62.3			1930-31	1929-30
Hull: Sakellaridis (p. sterl. per long ton)	6-18-9	7-3-9	6-16-3	6-15-0	6-7-6	6-4-9	4-15-7	6-12-2			5-12-6	6-18-2
COTTON.												
New Orleans: Middling (cents per lbs.)	7.32	7.04	5.87	5.84	5.75	5.77	6.99	11.49			1931-32	1930-31
New York: Middling (cents per lbs.)	7.50	7.20	6.00	6.00	5.85	5.91	7.18	11.96			6.20	10.07
Bombay: M. g. Broach f. g. (rupees per 784 lbs.) .	218	216	180	176	167	169	147 1/4	195 1/4			6.35	10.38
Alexandria (a) (talari per kantar):											181 1/2	191 1/4
Sakellaridis f. g. f.	14.97	14.77	13.32	13.32	12.82	12.74	18.84	n. 26 3/4			12.17	17.12
Ashmuni (Upper Egypt) f. g. f.	12.80	12.40	10.90	10.70	10.40	10.36	7.86	17 1/2			9.73	12.00
Bremen: Middling (U. S. cents per lbs.)	8.63	8.57	7.01	7.00	6.82	6.88	8.34	13.66			7.44	11.59
M. g. Broach fully good (pence per lbs.)	n. 5.15	n. 5.15	n. 4.35	n. 4.20	n. 4.10	n. 4.11	n. 3.59	n. 4.72	n.		4.48	n. 4.63
Le Havre: Middling, Gulf (francs per 50 kg.) . .	252	248	205	203	202	204	235	397	n.		216	349
Liverpool (pence per lbs.):												
Middling fair	n. 6.76	n. 6.51	n. 5.69	n. 5.67	n. 5.56	n. 5.63	n. 5.10	n. 8.27	n.		5.85	n. 6.93
Middling	5.76	5.51	4.69	4.67	4.56	4.68	3.90	6.45	n.		4.79	5.72
São Paulo, good fair	n. 6.06	n. 5.81	n. 4.99	n. 4.97	n. 4.86	n. 4.93	n. 4.10	n. 6.71	n.		4.98	5.91
M. g. Broach, fully good	n. 5.33	n. 5.10	n. 4.25	n. 4.30	n. 4.20	n. 4.24	n. 3.19	n. 4.40	n.		4.34	n. 4.25
Sakellaridis, fully good fair	8.00	7.80	7.15	7.10	6.90	6.79	5.99	11.45	n.		6.76	9.08
BUTTER.												
Copenhagen (a) (Kr. p. quintal)	165	170	160	170	182	165 1/2	201	243			1931	1930
Maastricht, auction (b): Dutch (florins p. kg.) .	n. q.	1.30	1.35	1.35	1.25	1.23	1.33	1.64			1.38	1.70
Hamburg, auction (b): Schleswig-Holstein butter, with quality mark (R. M. per 50 kg.) . . . . .	...	102.27	109.10	109.01	107.58	107.64	132.50	144.66			131.22	146.67
Kempten (b): Allgäu butter (Pfennige p. half kg.) .	3) 95	3) 95	3) 100	3) 100	3) 98	3) 98	110	128 1/2			110	128
London (c) (shillings p. cwt.):												
British blended	135/4	135/4	135/4	135/4	135/4	132/6	140/-	154/-			140/4	158/8
Danish	119/-	118/-	122/-	122/-	116/-	112/-	126/6	152/10			133/4	153/6
Irish creamery, salted	n. q.	n. q.	n. q.	n. q.	115/-	108/6	119/6	142/10			119/3	134/10
Dutch	115/-	115/-	114/-	114/-	112/-	112/5	122/-	147/5			132/1	151/11
Argentine	104/-	102/-	103/-	102/-	101/-	100/-	116/-	135/7			117/7	135/10
Siberian	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	4) 93/-	137/-			4) 97/4	131/6
Australian, salted	109/-	108/-	109/-	110/-	110/-	106/-	114/9	140/2			116/8	135/9
New Zealand, salted	114/-	112/-	113/-	114/-	113/-	108/-	119/3	142/5			119/11	137/8
CHEESE.												
Milan (lire per quintal):												
Parmigiano-Reggiano, xst quality of last year's production	920	920	920	920	920	914	1,225	1,295			1,103	1,160
Green Gorgonzola, mature, choice	475	465	465	465	465	462	592	592			616	671
Rome: Roman pecorino, choice (lire p. quintal) .	1,175	1,175	1,175	1,175	1,187	1,185	1,084	1,187			1,121	1,207
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheesemark, factory cheese, small; florins p. 50 kg.) . . . . .	...	20.00	21.50	20.00	20.00	20.90	37.75	42.40			32.63	40.83
Gouda: Gouda 45 + (whole milk cheese, with the country's cheesemark, home made; florins p. 50 kg.) . . . . .	...	24.00	24.00	24.00	24.50	25.90	40.12	47.40			37.93	45.56
Kempten (b): (Pfennige per half kg.):												
Soft cheese, green (20 % butterfat)	22 1/2	22 1/2	22 1/2	22 1/2	24 1/2	23 1/2	28 1/2	35			24	27
Emmenthal from the Allgäu (whole milk cheese) xst quality	83	83	83	83	83	83	100	5) 96 1/2			97 1/2	5) 97
London (c) (shillings per cwt.):												
English Cheddar	94/-	94/-	94/-	6) 94/-	6) 94/-	5) 100/-	96/9	94/-			99/10	103/4
Canadian	64/-	63/-	64/-	6) 63/-	6) 63/-	5) 62/-	65/1	85/7			75/9	93/11
New Zealand	60/6	60/-	61/-	62/-	62/-	61/7	65/3	83/4			63/2	82/2
Liverpool (c): Engl. Cheshire, ungraded (sh. p. cwt.)	79/4	79/4	79/4	79/4	79/4	79/4	75/10	81/8			94/3	97/5

a) Thursday prices. — b) Wednesday prices. — c) Average prices for weeks ending on preceding Wednesday.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) For the continuation of the series: 24 June: 189; average June: 186. — 3) Quoting system changed; actual prices are generally 3 Ft. higher than according to the former system used in Kempten. — 4) Average calculated from the prices for the Fridays and the Thursdays preceding. — 5) Average price for all qualities. — 6) New.

THE TREND OF PRICES OF AGRICULTURAL PRODUCTS DURING JULY 1932

In the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries. The indices collected together have been obtained according to different methods and criteria. A detailed account of the items included in each series and the system of construction of the index-numbers may be found in the volume published especially for this purpose by the Institute, entitled "Index-numbers of prices of agricultural products and other price-indices of interest to the farmer". We refer the reader to this volume for an exact interpretation of the significance of the different series of data.

Owing to the substantial divergence which often exists in the value and significance of the data available, much care is advisable in their utilisation from an international point of view. For this reason it has been considered opportune to reproduce all the data in their original form only, without attempting formally to unite them. The latter process, by a comparison of often heterogeneous data, might easily lead to the drawing of erroneous relations and conclusions.

But in addition to the original data, and subject to the above comments, a summary table is given below.

COUNTRIES	Percentage variations in the index-numbers for July, 1932			
	compared with those for June, 1932		compared with those for July, 1931	
	Index-numbers of prices of agricultural products	General index-numbers of prices	Index-numbers of prices of agricultural products	General index-numbers of prices
Germany	+ 0.4	— 0.3	— 12.2	— 14.1
England and Wales	— 4.5	+ 2.4	— 12.4	— 1.7
Argentina	+ 1.5	—	— 7.1	—
Canada	+ 0.8	0.0	— 13.4	— 7.1
Estonia	+ 1.4	—	— 25.5	—
United States	+ 9.6	—	— 27.8	—
Finland	+ 4.8	+ 0.9	— 26.2	— 7.9
Hungary	+ 2.8	+ 2.3	+ 2.8	+ 8.5
Italy	— 3.3	— 2.1	— 0.0	— 1.1
New Zealand	— 4.9	— 1.4	— 2.5	— 11.1
Netherlands	— 1.3	—	— 13.0	—
Poland	— 0.0	—	— 24.6	—
Yugoslavia	— 4.5	— 2.3	— 12.8	— 14.1
	+ 1.4	+ 1.1	+ 7.2	+ 11.8
	+ 4.0		+ 23.4	

a) Bureau of Agricultural Economics. — b) Bureau of Labor. — c) Products of the soil. — d) Animal products.

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER *

COUNTRIES AND CLASSIFICATIONS	July 1932	June 1932	May 1932	April 1932	March 1932	Feb. 1932	July 1931	July 1930	Year	
									1931	1930
GERMANY										
(Statistisches Reichsamt)										
1913 = 100.										
Foodstuffs of vegetable origin	116.6	118.3	121.2	122.4	121.6	119.5	126.1	119.7	119.3	115.3
Livestock	66.7	65.4	63.2	64.2	65.6	65.7	81.7	111.9	83.0	112.4
Livestock products	89.4	87.3	90.0	90.3	97.6	95.5	105.6	121.3	108.4	121.7
Feeding stuffs	94.2	93.8	96.1	99.7	99.0	93.5	104.7	97.1	101.9	93.2
Total agricultural products	92.5	92.1	93.4	94.7	96.5	94.6	105.4	114.8	103.8	113.1
Fertilizers	1) 67.7	71.5	70.7	71.7	72.2	72.0	71.3	77.8	76.5	82.4
Agricultural dead stock	115.5	116.0	116.4	117.0	117.2	118.9	129.9	139.6	130.7	139.4
Finished manufactures (* Gebrauchs- güter *)	116.0	117.3	118.8	119.9	121.5	123.6	140.6	159.9	140.1	159.3
General index-number	95.9	96.2	97.2	98.4	99.8	99.8	111.7	125.1	110.9	124.6
ENGLAND AND WALES										
(Ministry of Agriculture)										
Average of corresponding months 1911-13 = 100.										
Agricultural products	106	111	115	117	113	117	121	134	120	134
Feeding stuffs	94	94	97	99	102	97	81	94	83	96
Fertilizers	89	91	91	91	91	91	100	103	96	101
General index-number 2)	92.8	90.6	94.4	97.0	98.9	102.0	94.4	111.1	97.7	114.1
ARGENTINA 3)										
(Banco de la Nación Argentina)										
1926 = 100.										
Cereals and linseed	60.4	59.8	59.9	61.3	63.1	59.1	55.1	84.8	55.8	82.3
Meat	71.5	73.7	74.5	73.8	71.8	74.6	92.9	115.8	94.3	109.2
Hides and skins	47.7	40.4	40.6	47.8	61.6	61.8	63.1	70.5	64.5	71.6
Wool	43.0	39.6	41.1	46.1	48.7	49.4	52.4	70.4	61.2	67.4
Dairy products	57.3	57.3	58.4	58.7	58.8	58.9	84.0	80.0	74.5	82.4
Forest products	63.3	66.3	66.3	66.3	78.3	78.3	107.1	106.9	99.3	107.9
Total agricultural products	59.2	58.3	58.6	60.4	63.1	60.8	63.7	87.8	63.8	85.9
CANADA 3)										
(Internal Trade Branch of the Dominion Bureau of Statistics)										
1926 = 100.										
Field products (grain, etc.)	41.8	40.6	44.6	44.5	43.7	43.7	44.8	72.1	44.6	70.0
Animals and animal products	58.3	59.3	58.7	62.1	65.2	66.2	73.2	92.8	77.6	102.9
Total Canadian farm products	48.0	47.6	49.9	51.1	51.7	52.1	55.4	79.8	57.0	82.3
Fertilizers	72.0	72.0	70.5	71.4	72.0	72.0	86.9	91.5	83.0	88.2
Consumer's goods (other than foodstuffs, etc)	78.5	78.6	78.7	78.3	78.9	79.7	80.0	85.9	80.5	86.8
General index-number	66.6	66.6	67.7	68.4	69.1	69.2	71.7	85.3	72.2	86.6
ESTONIA										
(Central Bureau of Statistics)										
1913 = 100.										
Commodities imported 4)	115	114	114	114	113	112	136	106	129	118
Commodities exported	53	53	56	62	68	64	76	109	76	103
Agricultural products imported and export- ed 4)	70	69	72	77	81	78	94	108	91	108

* For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication "Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer" (Rome, 1930), as well as to pages 77 to 79 of the "Crop Report" of January 1932 and to page 517 of the "Crop Report" of July 1932.

1) From July 1932 new series. — 2) Calculated by the "Statist", reduced to base-year 1913 = 100. — 3) Average data for the year 1931 are provisional. — 4) From January 1932 the price of rye is excluded from the calculations.

COUNTRIES AND CLASSIFICATIONS	July	June	May	April	March	Feb.	July	July	Year	
	1932	1932	1932	1932	1932	1932	1931	1930	1931	1930
UNITED STATES (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals	42	44	49	50	51	51	57	92	63	100
Fruits and vegetables	83	82	80	78	73	68	110	173	98	158
Meat animals	72	57	59	66	69	65	92	127	93	134
Dairy products	63	62	69	74	76	79	85	115	94	123
Poultry and poultry products	65	59	60	60	61	70	83	101	96	126
Cotton and cottonseed	41	37	42	46	50	47	71	99	65	102
Total agricultural products	57	52	56	59	61	60	79	111	80	117
Commodities purchased by farmers 1)	109	111	112	113	114	116	129	143	129	146
Agricultural wages 1) . . . . .	...	—	—	94	—	—	2)123	160	116	152
UNITED STATES (Bureau of Labor) 1926 = 100.										
Grains	36.7	37.7	42.6	44.5	43.5	46.1	49.0	74.1	53.0	58.3
Livestock and poultry	54.1	46.7	44.4	49.2	51.4	50.3	63.0	81.3	63.9	89.2
Other farm products	48.4	48.2	49.6	51.2	52.1	52.7	71.3	86.9	69.2	91.1
Total farm products	47.9	45.7	46.6	49.2	50.2	50.6	64.9	83.1	64.8	88.3
Agricultural implements	84.9	84.9	84.9	85.0	85.1	85.1	94.5	94.9	94.0	95.1
Fertilizer materials	66.8	68.0	69.4	70.1	68.6	69.8	78.7	84.3	76.3	85.6
Mixed fertilizers	68.8	69.0	69.0	71.1	73.2	73.7	80.2	93.1	82.0	93.6
Cattle feed	42.2	42.1	45.9	53.4	52.4	48.2	55.8	94.8	62.7	99.7
Non-agricultural commodities	68.0	67.8	68.1	68.9	69.3	69.6	71.5	84.4	73.0	85.9
General index-number	64.5	63.9	64.4	65.5	66.0	66.3	70.0	84.0	71.1	86.3
FINLAND (Central Bureau of Statistics) 1926 = 100.										
Cereals	88	88	89	89	92	94	79	75	77	76
Potatoes	93	73	69	69	69	68	101	93	68	76
Fodder	67	70	72	70	70	71	65	65	63	62
Meat	65	63	63	61	67	63	65	98	64	88
Dairy products	73	68	72	74	78	84	70	87	76	84
Total agricultural products	73	71	72	73	77	78	71	86	72	82
General index-number	89	87	88	89	92	95	82	90	84	90
HUNGARY (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	87	90	90	90	92	90	87	88	—	—
General index-number	94	96	97	97	99	99	95	99	—	—
ITALY (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products	328.78	345.69	359.91	361.18	351.62	349.57	337.05	404.84	343.11	413.39
General index-number	299.93	304.22	312.54	318.79	322.14	323.49	337.43	401.50	341.57	411.04
NEW ZEALAND (Census and Statistics Office) Average 1909-13 = 100.										
Dairy produce	89.4	86.5	94.9	100.3	99.0	92.2	94.7	—	98.9	120.6
Meat	106.6	113.3	114.1	113.7	112.0	118.2	127.9	—	130.1	171.2
Wool	55.5	58.4	59.4	61.0	67.2	64.7	66.9	—	67.9	100.3
Other pastoral produce	59.0	50.9	59.0	69.6	70.7	67.9	77.0	—	76.7	124.3
All Pastoral and Dairy produce	82.2	82.7	87.3	90.7	91.5	89.3	94.0	—	96.5	127.9
Agricultural produce	84.8	105.5	111.2	113.5	112.8	113.0	116.5	—	115.5	126.7
All Pastoral, Dairy and agricultural produce	82.3	83.4	87.9	91.3	92.1	90.0	94.6	—	97.0	127.8

1) 1910-14 = 100. — 2) June.

COUNTRIES AND CLASSIFICATIONS	July 1932	June 1932	May 1932	April 1932	March 1932	Feb. 1932	July 1931	July 1930	Year	
									1931	1930
NORWAY 1) (Kgl. Statist. for Norges Vel) Average 1929-31 = 100.										
Cereals	124	125	125	123	123	122	111	125	112	114
Barley	144	150	155	151	150	140	125	130	150	152
Other	117	108	116	113	119	126	130	108	186	186
Other meat	78	67	69	70	81	87	108	206	186	126
Eggs	123	122	119	119	123	130	125	156	129	150
Dairy products	105	104	106	104	106	108	103	121	103	117
Mineral products	89	89	88	89	89	91	81	108	82	103
Fertilizers	89	89	88	89	89	91	96	105	90	101
NETHERLANDS (Directie van den Landbouw) Average 1924-25 to 1928-29 = 100.										
Products of the soil	51	49	56	56	56	60	67	42	(2) 72	(3) 68
Animal products	52	53	47	49	51	54	70	88	(2) 76	(3) 95
Total agricultural products	52	52	49	51	52	55	69	78	(2) 76	(3) 88
Agricultural wages	83	83	83	95	95	95	95	100	(2) 99	(3) 100
General index-number 3) . . . . .	...	52.8	53.5	54.1	55.5	56.2	65.6	77.8	65.7	79.2
POLAND 4) (Central Bureau Statistics) 1917 = 100.										
Products of the soil	47.8	54.6	62.3	61.7	57.1	53.8	48.2	56.7	53.9	52.1
Products of agricultural industry	61.2	65.7	71.6	71.5	67.1	64.5	64.1	78.4	65.9	69.9
Total products of plant origin	45.6	46.9	52.5	49.4	39.6	37.8	50.0	66.9	60.0	60.5
Animals	50.8	45.9	57.9	51.4	53.7	68.5	59.2	74.9	68.0	81.7
Dairy products	46.3	55.2	55.2	50.8	45.6	49.5	63.6	78.6	60.8	81.9
Total agricultural products	51.3	53.7	61.4	59.0	54.1	54.5	58.8	71.3	59.7	68.5
Fertilizers	112.9	112.9	95.1	94.1	94.1	94.1	118.5	126.3	120.2	127.8
Industrial products	67.7	68.0	69.4	70.0	71.6	73.0	80.1	94.2	79.4	94.0
General index-number	60.4	61.8	66.1	65.3	63.8	64.6	70.3	83.8	70.5	82.3
YUGOSLAVIA (National Bank of the Kingdom of Yugoslavia) 1926 = 100.										
Products of the soil	73.2	72.2	73.5	74.3	76.0	70.3	78.9	96.7	74.3	89.3
Animal products	57.2	55.0	53.5	53.6	55.0	57.6	74.7	97.7	72.2	96.3
Industrial products	63.4	63.4	65.0	66.2	68.3	68.8	71.3	80.2	71.4	81.8
General index-number	65.6	64.9	65.4	66.1	67.8	67.3	74.4	88.8	72.9	86.6

1) The agricultural years refer to the period April 1-March 31. — 2) Agricultural year July 1-June 30. — 3) Calculated by the Central Statistical Bureau of the Netherlands, reduced to the base 1923-1929 = 100. — 4) Average data for the year 1931 are provisional.

RATES OF FREIGHT

(Rates for full cargoes)

VOYAGES	19	12	5	29	22	AVERAGE				Commercial Season	
	August 1932	August 1932	August 1932	July 1932	July 1932	July 1932	August 1932	August 1932	August 1932	1931-32	1930-31
SHIPMENTS OF WHEAT AND MAIZE.											
Danube to Antwerp/Hamburg . . .	(shill. per long ton)	13/6	14/-	13/4 1/2	13/3	13/9	n. 13/6	14/1 1/2	14/2	14/6	13/11
Black Sea to Antwerp/Hamburg . .	(shill. per long ton)	9/4 1/2	9/4 1/2	9/4 1/2	9/4 1/2	9/4 1/2	n. 9/4 1/2	10/5	11/-	10/10	10/10
St. John to Liverpool 1)	(n. q.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	1/7	1/6
Montreal to United Kingdom . . .	(shill. per long ton)	1/7 1/2	1/10 1/2	1/9	0/5	0/5	0/6	1/7	2/-	0/8	1/10
Gulf to United Kingdom	(shill. per long ton)	2/3 1/2	2/3	2/3	2/3	2/3	2/3	2/3	2/10	2/6	2/3
New York to Liverpool 1)	(shill. per long ton)	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/8	1/6
Northern Range to U. K./Continent	(n. q.)	n. q.	n. q.	0/5	0/5	n. q.	n. q.	1/7 1/2	n. q.	0/9	1/9
North Pacific to United Kingdom (sh. per long ton)	(n. q.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	21/-	21/10	22/2	22/3
Vancouver to Yokohama 1) (gold \$ per sh. ton).	(n. q.)	2/00	2/00	2/00	2/00	2/00	2/00	2/67	2/50	2/30	2/72
La Plata Down River 3) to U. K./Continent	(n. q.)	n. 13/-	13/6	13/-	n. 13/-	n. 13/-	n. 13/2	14/-	17/6	16/-	16/4
La Plata Up River 4) to U. K./Continent	(shill. per long ton)	15/-	14/6	14/-	14/-	15/-	14/10	18/3	19/5	17/6	18/-
Karachi to U. K./Continent 5)	(n. q.)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	18/8	17/11	n. q.	19/3
Western Australia to U. K./Continent	(n. q.)	24/6	24/3	21/3	n. 22/6	n. q.	n. 20/10	n. 26/-	30/6	26/-	29/8
SHIPMENTS OF RICE.											
Saigon to Europe	(shill. per long ton)	24/-	24/-	23/-	22/6	20/6	21/6	n. q.	1/14/-	24/3	n. 18/11
Burma to U. K./Continent	(n. q.)	n. q.	n. q.	n. q.	20/-	20/-	n. 19/-	n. q.	n. q.	23/9	n. 17/8

1) Rates for parcels by liners. — 3) Freight in gold \$ per 100 lbs. (in the case of a loss of 25 % in the value of the shilling 10 \$ c. per 100 lbs. are equal to 2/8 per quarter). — 3) "Down River" includes the ports of Buenos Aires and La Plata. — 4) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa-Fé and Paraná) are subject to an extra rate of freight. — 5) The original data being quoted in "scale terms", 10 % is added to arrive at freights per long ton.

EXCHANGE RATES

PERCENTAGE OF PREMIUM + OR OF LOSS (—) OF DIFFERENT CURRENCIES IN RESPECT OF THEIR PARITY WITH THE DOLLAR 1)

COUNTRY	Exchange	19	12	5	29	22
		August 1932	August 1932	August 1932	July 1932	July 1932
Germany	Berlin	—	0.4	—	0.4	—
Argentina	New York	—	39.3	—	39.3	—
Belgium	Brussels	+	0.1	—	0.5	—
Canada	New York	—	13.0	—	12.9	—
Denmark	Copenhagen	—	31.1	—	30.5	—
Egypt	London	—	28.7	—	28.5	—
Great Britain	London	—	28.7	—	28.1	—
France	Paris	+	0.2	—	0.1	—
Indo-China	Paris	+	0.2	—	0.1	—
Hungary	Budapest	—	0.2	+	0.0	—
India	London	—	28.2	—	28.1	—
Italy	Milan	2) —	2.6	2) —	2.8	—
Japan	New York	—	54.4	—	48.6	—
Netherlands	Amsterdam	+	0.2	+	0.1	—
Rumania	New York	+	1.2	+	1.2	+

1) The percentage represents the premium or the loss as far as possible on the national exchange. With the aid of the table of reciprocal parities of the currencies considered, given at the next page of this Crop Report, and the percentages indicated above, it is possible to obtain the reciprocal prices of the different currencies at the rates to which the quotations of the Monthly Crop Report refer. — 2) On the New York exchange.

**RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH ARE QUOTED THE PRICES IN
THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)**

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium	Canada	Denmark	Egypt	France	Great Britain	Hungary	India	Italy	Japan	Netherlands	Poland	Rumania	Czechoslovakia	Former Latin monetary union (3)
Germany	Reichsmark	1.000	0.561	8.566	0.238	0.889	4.819	6.080	0.979	1.362	0.653	4.526	0.478	0.593	2.123	39.825	8.040	1.235
Argentina	Paper peso	1.782	1.000	15.263	0.424	1.584	8.586	10.833	1.744	2.427	1.163	8.064	0.851	1.056	3.872	70.959	14.326	2.200
Belgium	Franc	0.117	0.065	1.000	0.028	0.104	0.563	0.710	0.114	0.159	0.076	0.528	0.056	0.069	0.248	4.649	0.939	0.145
Canada	Dollar	4.198	2.356	35.959	1.000	3.731	20.230	25.524	4.110	5.718	2.740	19.000	2.006	2.488	8.914	167.181	33.751	5.183
United States																		
Denmark	Crown	1.125	0.631	9.637	0.268	1.000	5.422	6.840	1.101	1.532	0.734	5.092	0.538	0.667	2.389	44.803	9.045	1.389
Sweden																		
Egypt	Piastre	0.207	0.116	1.777	0.049	0.184	1.000	1.262	0.203	0.283	0.135	0.939	0.099	0.123	0.441	8.264	1.668	0.256
France	Franc	0.164	0.092	1.409	0.039	0.146	0.793	1.000	0.161	0.224	0.107	0.744	0.079	0.097	0.349	6.550	1.322	0.203
Indo-China	Piastre (2)																	
Great Britain	Shilling	1.021	0.573	8.750	0.243	0.908	4.923	6.211	1.000	1.391	0.667	4.623	0.488	0.605	2.169	40.680	8.213	1.261
Hungary	Forint	0.734	0.412	6.289	0.175	0.653	3.580	4.464	0.720	1.000	0.479	3.323	0.351	0.435	1.559	29.240	5.903	0.905
India	Ruppee	1.552	0.860	13.125	0.365	1.362	7.384	9.316	1.500	2.087	1.000	6.935	0.732	0.908	3.254	61.020	12.319	1.892
Italy	Lira	0.221	0.124	1.892	0.053	0.196	1.065	1.343	0.216	0.301	0.144	1.000	0.106	0.131	0.469	8.799	1.776	0.273
Japan	Yen	2.092	1.174	17.924	0.498	1.860	10.084	12.723	2.049	2.850	1.366	9.471	1.000	1.240	4.443	83.333	16.824	2.583
Netherlands	Florin	1.687	0.947	14.454	0.402	1.450	8.132	10.260	1.652	2.298	1.101	7.637	0.806	1.000	3.583	67.200	13.567	2.083
Poland	Zloty	0.471	0.264	4.034	0.112	0.419	2.269	2.863	0.461	0.641	0.307	2.131	0.225	0.279	1.000	18.755	3.786	0.581
Rumania	Leu	0.025	0.014	0.215	0.006	0.022	0.121	0.153	0.025	0.034	0.016	0.114	0.012	0.015	0.053	1.000	0.202	0.031
Czechoslovakia	Crown	0.124	0.070	1.065	0.030	0.111	0.599	0.756	0.122	0.169	0.081	0.563	0.059	0.074	0.264	4.953	1.000	0.154
Former Latin monetary union (3)	Gold Franc	0.810	0.455	6.938	0.193	0.720	3.903	4.925	0.793	1.103	0.529	3.666	0.387	0.480	1.720	32.258	6.512	1.000

(1) Each figure gives the equivalent in the currency of the country indicated at the head of the respective column of the currency unit indicated at the beginning of the respective line. —
 (2) 1 Gold piastre equals 10 francs. — (3) Data for purpose of comparison.

MONTHLY BULLETIN

OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

FARM ECONOMICS.

Provisional Results of Farm Accountancy for 1929-30

In 1931 the International Institute of Agriculture published, in a provisional form only, a *Recueil* of statistics containing farm accountancy results for 1927-28, relating to 16 European countries. The Institute has now, in 1932, published the first volume of a series of annual publications which will contain these results for the succeeding financial years in respect of European and overseas countries. Sixteen European countries are represented in this first volume of Farm Accountancy Statistics based on the data for 1928-29. At the beginning of 1933 the Institute will publish the results for the financial years 1929-30 as collected for some twenty European countries, and also it is hoped for some of the overseas countries, especially United States of America, Canada and Japan.

In this article will be found, grouped by countries, the *provisional results* of the farm accountancy undertaken in 1929-30 in the countries from which data have already been received. For the sake of useful comparisons, the corresponding results for 1927-28 and 1928-29 have been inserted.

DEFINITION OF TERMES.

Gross return. — The gross return is the total increase of value obtained in one year in the farm through transformation, exchange and revaluation.

Cost of production. — Farm expenses (1), plus interest claim to be charged on the farm assets.

Family Farm Earnings. — Is the fraction of the gross return which the farmer and his family could have used up without the net capital being diminished.

Family Capital Return. — Family farm earnings minus a fair wage claim for unpaid labour of the farmer and his family.

Net Return on Total Farm Assets. — Part of the gross return which may be considered as the interest effectively earned on the whole agricultural assets (gross return minus farm expenses).

(Continued at page 274).

(1) The farm expenses consist in the cost of labour, including a fair wage for the members of the family working on the farm, current expenses in cash and in kind (including taxes), decrease in value of stocks and of field inventory, and depreciation charges.

A) — Peasant farms.

COUNTRIES	YEARS	NUMBER OF FARMS	AVERAGE AREA in ha.	Family farm earnings per ha.	Part of family farm earnings consumed by the family per ha.	Increase or decrease in own capital (Family farm earnings minus consumption per ha. ³ (1—2))
I	II	III	IV	1	2	3 (1—2)
ENGLAND (Cambridge)	1929-30	141	28.31	—	—	—
	1928-29	1	17 —	486.62	—	—
SCOTLAND	1929-30	6	44.45	—	—	—
NETHERLANDS (Overijssel)	1929-30	431	15.94	330.87	—	—
	1928-29	2,201	29.47	122.10	—	—
DENMARK	1929-30	618	23.15	—	—	—
	1928-29	599	22.68	—	—	—
	1927-28	573	22.65	—	—	—
GERMANY	1929-30	2,222	33.81	30.27	—	—
	1928-29	1,946	33.39	—	—	—
	1927-28	1,637	44.25	—	—	—
SWITZERLAND	1929-30	501	15.19	376 —	—	—
	1928-29	504	14.66	350.31	69.31	281 —
	1927-28	500	14.30	—	—	—
AUSTRIA	1929-30	896	28.65	127.06	—	—
	1928-29	743	29.67	128.15	—	—
	1927-28	397	24.66	—	—	—
CZECHOSLOVAKIA	1929-30	202	17.52	230.21	—	—
	1928-29	228	17.37	223.40	—	—
	1927-28	221	17.56	—	—	—
BULGARIA	1929-30	4	9.09	377.90	—	—
	1928-29	5	15.54	—	—	—
RUMANIA 4)	1928-29	63	29.06	—	—	—
HUNGARY	1929-30	34	14.72	144.37	—	—
POLAND	1929-30	793	13.59	109.47	—	—
	1923-29	855	13.54	142.63	—	—
	1927-28	804	13.64	—	—	—
LITHUANIA	1929-30	100	37.34	55.17	—	—
	1928-29	95	33.33	45.47	—	—
LATVIA	1929-30	102	40.55	69.64	—	—
	1928-29	132	41.54	35.77	—	—
	1927-28	117	45.57	—	—	—
ESTHONIA	1929-30	260	38.72	70.69	—	—
	1928-29	260	41.09	57.20	—	—
	1927-28	250	41.84	64.78	—	—
FINLAND	1929-30	524	21.77	111.10	—	—
	1928-29	474	22.13	128.13	—	—
	1927-28	414	22.97	—	—	—
NORWAY	1929-30	191	16.39	—	—	—
	1928-29	172	16.60	—	—	—
	1927-28	190	17.26	—	—	—
SWEDEN	1929-30	295	15.21	—	—	—
	1928-29	242	11.42	—	—	—
	1927-28	286	11.35	—	—	—

1) Including forests, waters and waste lands. — 2) Including forests. — 3) Including forests and waters. — 4) The results

Final results in gold francs.

Fair wage claim for unpaid labour of farmer and his family	Return on own capital per ha.	Interest paid on farm debts	NET RETURN		PROFIT OR LOSS ON TOTAL FARM ASSETS			INTERESTS RETURN ON LANDLORD'S CAPITAL		FAMILY LABOUR EARNINGS		Labour costs per man's workins day (for fam-ily and em-ployees)
			per ha.	in % of total farm assets	per ha.	IN %		per ha.	in % of land-lord's capital	per ha.	per man's working day (for family)	
						of the gross return	of total farm assets					
4	5 (1-4)	6	7 (5+6)	8	9	10	11	12	13	14	15	16
24.74	—	—	35.20	1.61	—	—	—	—	—	—	—	—
154.10	332.52	—	332.52	9.40	168.50	13.21	4.77	282.98	10.56	437.05	—	13.85
—	—	—	103.73	5.72	—	—	—	—	—	—	—	—
—	—	—	165.95	3.89	41.52	4.38	0.98	130.08	3.67	—	—	5.21
159.73	—	—	177.25	5.49	21.81	2.03	0.67	127.85	5.33	181.54	—	8.12
164.29	—	—	202.86	6.24	47.21	4.23	1.45	156.07	6.33	211.50	—	8.42
166.19	—	—	58.86	1.78	99.77	9.87	3.02	10.51	0.42	67.57	—	8.56
96.14	15.87	53.73	37.86	—	—	—	—	—	—	—	—	—
96.31	—	—	54.05	—	—	—	—	—	—	—	—	—
73.50	—	—	16.01	—	—	—	—	—	—	—	—	—
321 —	55 —	200 —	255 —	4 —	89 —	6.83	1.15	163 —	2.78	—	6 —	7.70
342.34	7.97	178.65	186.62	2.63	162 —	12.90	2.09	92.34	1.56	—	4.35	7.72
355.11	—	—	123.98	1.76	233.45	19.14	3.31	27.43	0.50	—	2.87	7.81
94.71	32.35	10.48	42.83	2.51	42.48	13.06	2.49	11.93	1 —	—	1.28	2.42
89.78	38.37	9.82	48.19	2.93	34.13	10.68	2.07	23.35	2.03	—	—	2.35
107.78	—	—	77.77	4.41	—	—	—	—	—	—	—	2.98
160.53	69.68	12.04	81.72	2.83	91.54	—	3.17	33.53	1.61	—	—	2.75
113.06	110.34	28.04	138.38	5.12	25.40	—	0.94	87.69	4.52	—	—	2.40
119.89	—	—	143.33	5.83	—	—	—	95.38	5.51	—	—	2.40
166.80	211.10	21.80	232.90	12.81	87.50	14.76	4.81	200 —	14.32	—	—	2.19
140.43	—	—	228.89	10.41	56.94	—	2.59	199.69	10.93	—	—	2.17
14.80	—	—	39.37	5.20	42.49	54.40	5.62	27.01	4.01	—	—	—
117.71	26.66	10.60	37.26	1.42	93.46	28.60	3.58	16.14	0.73	—	0.67	4.32
77.08	32.39	27.87	60.26	2.65	76.24	26.30	3.35	24.83	1.27	—	0.07	1.78
83.53	59.10	27.47	86.57	3.84	48.67	14.30	2.16	50.77	2.63	—	0.91	2.07
73.51	—	—	117.06	6.45	8 —	2.34	0.44	87.76	5.71	—	—	1.87
30.51	24.66	7.65	32.31	3.24	27.56	17.03	2.76	16.16	2.22	2.08	—	2.19
33.10	12.37	4.74	17.11	1.62	46.31	29 —	4.38	0.55	0.07	—	—	2.65
48.42	21.22	3.11	28.33	3.97	4.51	2.67	0.74	12.94	3.32	—	1.79	3.38
47.99	12.22	2.72	9.50	1.56	38.34	26.12	6.29	21.59	5.59	—	—	3.42
44.17	—	—	18.56	2.90	16.31	10.46	2.52	3.73	0.90	—	1.09	3.57
63.70	6.99	4.01	11 —	1.88	24.15	14.79	4.12	4.77	1.22	—	1.70	3.47
62.33	5.13	18.16	13.03	2.27	21.38	12.91	3.73	2.59	0.69	—	1.85	3.56
62.47	2.31	17.15	19.46	3.43	20.27	12.04	3.58	1.57	0.43	—	2.11	3.55
92.45	18.65	15.57	34.22	2.64	74.72	23.48	5.76	3.24	0.33	—	—	4.37
95.03	33.10	8.15	41.25	3.29	64.98	18.67	5.19	10.82	1.14	—	—	4.13
89.89	—	—	58.70	5.10	39.43	11.50	3.41	30.18	3.47	—	—	4.01
152.75	—	—	108.50	2.15	148.13	17.02	2.93	38.59	0.99	—	—	5.62
163.51	—	—	106.08	1.95	171.11	18.12	3.14	29.09	0.70	—	—	5.90
204.38	—	—	90.17	1.66	186.93	19.63	3.43	12.13	0.29	—	—	5.99
—	—	—	70.59	2.91	58.27	10.11	2.40	25.29	1.51	—	—	—
—	—	—	49.98	2.27	66.89	13.38	3.04	6.03	0.41	—	—	—
—	—	—	51.88	2.35	65.67	13.04	2.97	9.27	0.62	—	—	—

for 1929-30 cannot yet be published.

* Ec. 9 Ingl.

A) — Peasant farms.

COUNTRIES	YEAR	NUMBER OF FARMS	AVERAGE AREA in ha.	TOTAL labour in man's working days per ha. (family and employees)	PER	
					Labour costs	
					Hired labour	Family labour
I	II	III	IV	V	1	2
ENGLAND (Cambridge)	1929-30	141	28.31	—	145.19	24.74
	1928-29	1	17 —	27.29	223.76	154.10
SCOTLAND	1929-30	6	44.55	—	120.16	
NETHERLANDS (Overijssel)	1929-30	431	15.94	59.50	136 —	174.09
DENMARK	1929-30	618	23.15	41.60	178.32	159.73
	1928-29	599	22.68	40.37	175.80	164.29
	1927-28	573	22.65	41.09	185.41	166.19
GERMANY	1929-30	2,222	33.81	—	182.10	96.14
	1928-29	1,946	33.39	—	187.11	96.31
	1927-28	1,637	44.25	—	186.02	73.50
SWITZERLAND	1929-30	501	15.19	70 —	218 —	321 —
	1928-29	504	14.66	73 —	221 —	342.34
	1927-28	500	14.30	75 —	231.03	353.11
AUSTRIA	1929-30	896	28.65	69 —	72.27	94.71
	1928-29	743	29.67	69.69	74.05	89.78
	1927-28	397	24.66	64.25	83.88	107.78
CZECHOSLOVAKIA	1929-30	202	17.52	98.64	110.84	160.53
	1928-30	228	17.37	98.26	122.87	113.06
	1927-28	221	17.56	100.94	122.84	119.89
BULGARIA	1929-30	4	9.09	86.90	23.70	166.80
	1928-29	5	15.54	84.26	42.49	140.43
RUMANIA	1928-29	63	29.06	—	7.62	14.80
HUNGARY	1929-30	34	14.72	40.69	57.89	117.71
POLAND	1929-30	793	13.59	66.91	42.11	77.08
	1928-29	855	13.54	64.21	49.07	83.53
	1927-28	804	13.64	66.61	51.29	73.51
LITHUANIA	1929-30	100	37.34	35.27	46.92	30.51
	1928-29	95	33.33	31.24	49.87	33.10
LATVIA	1929-30	102	40.55	24.86	35.63	48.42
	1928-29	132	41.54	25.48	39.20	47.99
	1927-28	117	45.57	25.50	46.84	44.17
ESTHONIA	1929-30	260	38.72	27 —	30.04	63.70
	1928-29	260	41.09	26.55	32.33	62.33
	1927-28	250	41.84	26.60	32 —	62.47
FINLAND	1929-30	524	21.77	37.48	71.37	92.45
	1928-29	474	22.13	42.30	79.66	95.03
	1927-28	414	22.97	41.77	77.50	89.89
NORWAY	1929-30	191	16.39	64 —	207.11	152.75
	1928-29	172	16.60	66.49	228.79	163.51
	1927-28	190	17.26	70 —	215.15	204.38
SWEDEN	1929-30	295	12.21	—	270.81	
	1928-29	242	11.42	—	264.67	
	1927-28	286	11.35	—	268.92	

Final results in gold francs (Continued).

SOCIAL INCOME									GROSS RETURN		FARM EXPENSES	
HA.			IN %						per ha.	Per man's day (family and employees)	par ha.	Per man's day (family and employees)
Net return	Taxes and rates	TOTAL	Labour costs		Net return	Taxes and rates	TOTAL	Per man's day (family and employees)				
3	4	5 (1 to 4)	Hired labour	Family labour	8	9	10 (6 to 9)	11	12	13	14	15
35.20	82.62	287.75	50.46	8.60	12.23	28.71	100 —	—	615.58	—	580.38	—
332.52	—	710.38	31.50	21.69	46.81	—	100 —	26.02	1,275.71	46.75	943.19	34.56
103.73	43.08	266.97	45.01		38.85	16.14	100 —	—	423.26	—	318.53	—
165.95	11.18	487.22	27.91	35.73	34.06	2.30	100 —	8.19	946.76	15.91	780.81	13.12
177.25	32.93	548.23	32.53	29.13	32.33	6.01	100 —	13.17	1,073.33	25.79	896.08	21.53
202.86	35.46	578.41	30.40	28.40	35.07	6.13	100 —	14.32	1,115.99	27.04	913.13	22.62
58.86	38.46	448.92	41.30	37.02	13.12	8.56	100 —	10.92	1,010.30	24.39	951.44	23.15
37.86	32.01	348.11	52.31	27.62	10.88	9.19	100 —	—	641.51	—	603.65	—
54.05	35.86	373.33	50.12	25.80	14.47	9.61	100 —	—	676.28	—	622.23	—
16.01	30.14	305.67	60.86	24.05	5.23	9.86	100 —	—	561.30	—	545.29	—
255 —	30 —	824 —	26.45	38.96	30.95	3.64	100 —	11.78	1,303 —	18.61	1,048 —	14.97
186.62	28.10	778.06	28.40	44 —	23.99	3.61	100 —	10.66	1,258.67	17.24	1,072.05	14.68
123.98	28.95	739.07	31.26	46.05	16.78	3.91	100 —	9.86	1,219.67	16.26	1,095.69	14.60
42.83	12.47	222.28	32.51	42.61	19.27	5.61	100 —	3.22	325.22	4.71	282.39	4.09
48.19	11 —	223.02	33.20	40.25	21.61	4.94	100 —	3.20	318 —	4.56	269.81	3.87
77.77	11.57	281 —	29.86	38.35	27.67	4.12	100 —	4.37	379.36	5.90	301.59	4.69
81.72	14.84	367.93	30.13	43.63	22.21	4.03	100 —	3.73	—	—	—	—
138.38	14.99	389.30	31.56	29.04	35.55	3.85	100 —	3.96	—	—	—	—
143.33	16.01	402.07	30.35	29.82	35.65	3.98	100 —	3.98	—	—	—	—
232.90	18 —	441.40	5.37	37.79	52.76	4.08	100 —	5.08	592.70	6.82	359.80	4.14
228.89	20.39	432.20	9.83	32.49	52.96	4.72	100 —	5.13	—	—	—	—
39.37	4.04	65.83	11.58	22.49	59.79	6.14	100 —	—	78.12	—	38.75	—
37.26	16.89	229.75	25.20	51.23	16.22	7.35	100 —	5.64	326.70	8.03	289.44	7.11
60.26	6.54	185.99	22.64	41.44	32.40	3.52	100 —	2.78	289.87	4.33	229.61	3.43
86.57	6.72	225.89	21.72	36.07	38.33	2.98	100 —	3.52	340.40	5.30	253.83	3.95
117.06	5.33	247.19	20.75	29.74	47.36	2.15	100 —	3.71	341.14	5.12	224.08	3.56
32.31	4.49	114.23	41.07	26.71	28.29	3.93	100 —	3.24	161.87	4.59	129.56	3.67
17.11	4.05	104.13	47.89	31.79	16.43	3.89	100 —	3.33	159.71	5.11	142.60	4.56
24.33	1.92	110.30	32.30	43.90	22.06	1.74	100 —	4.44	169.20	6.81	144.87	5.83
9.50	2.16	79.85	49.09	60.10	11.89	2.70	100 —	3.31	146.73	5.75	156.23	6.13
18.56	2.95	112.52	41.63	39.26	16.49	2.62	100 —	4.39	156.11	6.12	137.55	5.39
11 —	2.44	107.18	28.03	59.43	10.26	2.28	100 —	3.97	163.27	6.05	152.27	5.64
13.03	2.60	110.29	29.31	56.51	11.82	2.36	100 —	4.16	165.63	6.23	152.60	5.75
19.46	2.66	116.59	27.44	55.58	16.70	2.28	100 —	4.38	168.15	6.32	148.69	5.59
34.22	4.36	202.40	35.26	45.68	16.91	2.15	100 —	5.40	318.25	8.49	284.03	7.58
41.25	6.79	222.73	35.76	42.67	18.52	3.05	100 —	5.26	347.96	8.23	306.71	7.25
58.70	—	226.09	34.27	39.76	25.97	—	100 —	5.42	342.39	8.20	283.69	6.79
108.50	5.47	473.83	43.71	32.24	22.90	1.15	100 —	7.40	870.46	13.60	761.96	11.91
106.08	5.76	504.14	45.39	32.43	21.04	1.14	100 —	7.58	944.18	14.20	838.10	12.61
90.17	5.73	515.43	41.75	39.66	17.48	1.11	100 —	7.33	952.29	13.60	862.12	12.32
70.59	—	341.40	79.32		20.68	—	100 —	—	576.02	—	505.43	—
49.98	—	314.65	84.12		15.88	—	100 —	—	500.10	—	450.12	—
51.88	—	320.80	83.83		16.17	—	100 —	—	502.90	—	451.02	—

B) — *Large farms.*

COUNTRIES	YEAR	NUMBER OF FARMS	AVERAGE AREA in ha.	Family farm earnings per ha.	Part of family farm earnings consumed by the family per ha.	Increase or decrease in own capital (Family farm earnings minus consumption per ha. 3 (1-2))
	II	III	IV	I	2	
ENGLAND (Cambridge)	1929-30	162	119.38	—	—	—
	1928-29	12	129 —	—	—	—
SCOTLAND	1929-30	120	151.90	—	—	—
DENMARK	1929-30	167	117.35	—	—	—
	1928-29	155	121.27	—	—	—
	1927-28	153	122.43	—	—	—
GERMANY	1929-30	1,255	270.62	26.68	—	—
	1928-29	1,034	243.60	—	—	—
	1927-28	656	345.89	—	—	—
CZECHOSLOVAKIA	1929-30	25	82.55	84.68	—	—
	1928-29	30	92.66	103.82	—	—
	1927-28	26	99.99	—	—	—
FINLAND	1929-30	80	88.31	34.70	—	—
	1928-29	72	82.24	38.13	—	—
	1927-28	75	88.17	—	—	—
SWEDEN	1929-30	125	192.94	—	—	—
	1928-29	113	207.66	—	—	—
	1927-28	96	209.83	—	—	—

COUNTRIES	YEAR	NUMBER OF FARMS	AVERAGE AREA in ha.	TOTAL labour in man's working days per ha. (family and employees)	PER	
					Labour costs	
					Hired labour	Family labour
I	II	III	IV	V	1	2
ENGLAND (Cambridge)	1929-30	162	119.38	—	148.87	13.63
	1928-29	12	129 —	30.95	220.95	39.04
SCOTLAND	1929-30	120	151.90	—	148.75	
DENMARK	1929-30	167	117.35	30.37	199.35	56.50
	1928-29	155	121.27	31.03	197.27	54.20
	1927-28	153	122.43	31.66	204.36	57.51
GERMANY	1929-30	1,255	270.62	—	221.39	14.13
	1928-29	1,034	243.60	—	229.46	14.37
	1927-28	656	345.89	—	212.30	11.54
CZECHOSLOVAKIA	1929-30	25	82.55	65.73	154.68	31.47
	1928-29	30	92.66	63.43	165.13	16.85
	1927-28	26	99.99	67.93	162.10	14.98
FINLAND	1929-30	80	88.31	25.78	98.92	23.57
	1928-29	72	82.24	29.33	118.24	21.52
	1927-28	75	88.17	29.11	112.52	21.43
SWEDEN	1929-30	125	192.94	—	232.40	
	1928-29	113	207.66	—	244.31	
	1927-28	96	209.83	—	245.11	

Final results in gold francs.

Fair wage claim for unpaid labour of farmer and his family	Return on own capital per ha.	Interests paid on farm debts	NET RETURN		PROFIT OR LOSS ON TOTAL FARM ASSETS			INTEREST RETURN ON LANDLORD'S CAPITAL		FAMILY LABOUR EARNINGS		Labour costs per man's working day (for family and employees)
			per ha.	in % of total farm assets	per ha.	IN %		per ha.	in % of land-lord's capital	per ha.	per man's working day (for family)	
						of the gross return	of total farm assets					
4	5 (1-4)	6	7 (5+6)	8	9	10	11	12	13	14	15	16
—	—	—	12.40	0.65	—	—	—	—	—	—	—	—
39.04	—	—	80.19	3.08	42.39	5.36	1.63	27.45	1.62	66.52	—	8.40
—	—	—	29.24	1.45	—	—	—	—	—	—	—	—
56.50	—	—	116.72	4.33	10.45	1.37	9.39	80.14	3.83	46.05	—	8.42
54.20	—	—	170.56	6.39	45.30	5.49	1.70	136.34	6.50	99.49	—	8.10
57.51	—	—	47.21	1.73	80.94	11.21	2.96	12.96	0.60	23.44	—	8.27
14.13	40.81	67.66	26.85	—	—	—	—	—	—	—	—	—
14.37	—	—	31.62	—	—	—	—	—	—	—	—	—
11.54	—	—	6.71	—	—	—	—	—	—	—	—	—
31.47	53.21	42.06	95.27	4.35	36.03	—	1.65	52.95	3.57	—	—	2.83
16.85	86.97	36.25	123.22	6.28	5.56	—	0.28	77.21	6.04	20.93	—	2.87
14.98	—	—	169.78	8.89	—	—	—	126.27	10.00	—	—	2.61
23.57	11.13	17.62	28.75	2.32	75.90	28.05	6.14	0.02	—	—	—	4.75
21.52	16.61	12.66	29.27	2.41	73.43	23.68	6.05	0.78	0.08	—	—	4.76
21.43	—	—	46.96	4.26	46.54	14.90	4.22	20.17	2.42	—	—	4.60
—	—	—	32.37	1.47	85.15	16.08	3.56	10.45	0.70	—	—	—
—	—	—	49.58	3.30	65.25	11.39	3.03	5.76	0.41	—	—	—
—	—	—	25.37	1.17	89.79	16.63	4.16	18.92	1.33	—	—	—

SOCIAL INCOME									GROSS RETURN		FARM EXPENSES		
HA.			IN %						Per man's day (family and employees)	per ha.	Per man's day (family and employees)	par ha.	Per man's day (family and employees)
Net return	Taxes and rates	TOTAL 5 (1 to 4)	Labour costs		Net return	Taxes and rates	TOTAL 10 (6 to 9)						
			Hired labour	Family labour									
3	4	(1 to 4)	6	7	8	9	10 (6 to 9)	11	12	13	14	15	
12.40	64.52	239.42	62.18	5.69	5.18	26.95	100 —	—	476.55	—	464.15	—	
80.19	—	340.18	64.95	11.48	23.57	—	100 —	10.98	791.26	25.56	711.07	22.97	
29.24	62.90	240.89	61.75		12.14	26.11	100 —	—	446.09	—	416.85	—	
116.72	31.89	404.46	49.29	13.97	28.86	7.88	100 —	13.32	760.60	25.04	643.88	21.20	
170.56	34.66	456.69	43.19	11.87	37.35	7.59	100 —	14.72	824.28	26.56	653.72	21.07	
47.21	36.08	345.16	59.21	16.66	13.68	10.45	100 —	10.91	721.47	22.79	674.26	21.30	
26.85	27.95	290.32	76.26	4.86	9.25	9.63	100 —	—	535.05	—	508.20	—	
31.62	32.29	307.74	74.56	4.67	10.27	10.50	100 —	—	567.59	—	535.97	—	
— 6.71	25.18	242.31	87.61	4.76	2.76	10.39	100 —	—	478.06	—	484.77	—	
95.27	16.16	297.58	51.98	10.58	32.01	5.43	100 —	4.53	—	—	—	—	
123.22	16.98	322.18	51.25	5.23	38.25	5.27	100 —	5.08	—	—	—	—	
169.78	18.42	365.28	44.37	4.10	46.49	5.04	100 —	5.38	—	—	—	—	
28.75	5.22	156.46	63.22	15.07	18.37	3.34	100 —	6.07	270.60	10.49	241.85	9.38	
29.27	6.80	175.83	67.25	12.24	16.64	3.87	100 —	5.99	310.06	10.57	280.79	9.57	
46.96	—	180.91	62.19	11.85	25.96	—	100 —	6.22	312.35	10.73	265.39	9.12	
32.37	—	264.77	87.77		12.23	—	100 —	—	529.46	—	497.09	—	
49.58	—	293.89	83.13		16.87	—	100 —	—	572.57	—	522.99	—	
25.37	—	270.48	90.62		9.38	—	100 —	—	539.86	—	514.49	—	

Profit or Loss on Total Farm Assets. — Gross return minus total cost of production. In case of a loss, the loss will indicate the deficit left after covering the total cost of production: in case of a profit, the profit will indicate the gain made after covering the same expense.

Interest Return on Landlord's Capital. — Net return minus a fair interest claim on the tenant's or operating capital.

Family Labour Earnings. — This can be found by subtracting from the family farm earnings a fair interest claim on own capital invested.

Social Income. — The social income can be computed by adding together the net return on agricultural assets, a fair wage claim for the unpaid labour of the farmer and his family, the wages paid to employees (including board), and the taxes. The social income is the total income of the farming enterprise which goes to the farmer, to the creditors, and also to the State.

LAND SYSTEMS

Rural Settlement in Post-war Germany.

In any discussion of land settlement in Germany it is essential to distinguish very clearly between *rural settlement* and *suburban settlement*, or small farming in the immediate neighbourhood of the towns.

The principal object of *rural settlement* (*ländliche Siedlung*) is to form a number of new farming enterprises, in particular independent family farms, on which the main part of the work is done by the owner and the members of his family. At the same time, there are also formed by division of the large farms a certain number of small farms, the owners of these being farm labourers, artisans or small shopkeepers who must have some other occupation to depend on. A small area of land is also all that is necessary where a specialised type of farming is carried on. Side by side with these new farms, considerable importance also attaches to the enlargement of small farms by taking in of adjacent land (*Anliegersiedlung*) with the object of making them capable of providing maintenance for the family unit.

Suburban settlement (*Stadtrandsiedlung*) is the outcome of the present day mass of unemployment. The object is to establish unemployed persons on small areas in the immediate neighbourhood of towns and giving them the opportunity of improving their situation by putting up a dwelling and growing some part of the food they require. Like any other measure which aims at improving the position of the unemployed, this form of settlement has much to recommend it. But it is clear that it is a measure applicable mainly when it is a question of temporary unemployment only and when there is a prospect of eventual return to the previous occupation. During the period of unemployment the moral depression is undoubtedly lightened by work on a plot of land of one's own.

Considerations of space make it impossible to deal with the numerous problems and questions involved in this suburban settlement. The present

article will deal with rural settlement only and a short summary will be given of its organisation, the method of obtaining the necessary land, the financing and the results obtained up to the present

The centre of rural land settlement in Germany is to be found in the eastern provinces of Prussia. In the other regions the conditions essential to settlement on a large scale are not present, and in so far as settlement is in progress it takes the form of clearing of lands previously waste. This fact is abundantly clear on inspection of the different size categories of farms (see Table I) in the different parts of Germany. The distribution of agricul-

TABLE I. — *The Distribution of Agricultural Land among the Different Size Groups of Farms according to the Farm Census of 16 June 1925.*

	Total agricultural land in farms of 0.50 ha. and more 1000 ha.	Proportion of agricultural land in every 100 hectares assigned to the size groups of farms ha.				
		0.50 to 2	2 to 5	5 to 20	20 to 100	100 and over
Province of East Prussia.	2,323	2.5	4.6	21.2	32.5	39.2
Town of Berlin	24	29.7	8.0	29.3	18.7	14.3
Province of Brandenburg.	1,969	4.3	6.4	27.1	27.8	34.4
" of Pomerania	1,890	2.8	3.2	24.3	19.9	49.8
" of Grenzmark Posen-West Prussia,	396	2.4	3.5	27.7	33.1	33.3
" of Lower Silesia	1,601	3.6	9.2	32.8	21.3	33.1
" of Upper Silesia	593	6.7	14.2	38.7	12.9	27.5
" of Saxony	1,608	7.9	7.4	29.5	30.2	25.0
" of Schleswig-Holstein	1,038	2.5	4.0	22.9	55.1	15.5
" of Hanover.	1,780	7.0	12.5	38.5	35.6	6.4
" of Westphalia	993	10.1	14.6	40.7	31.3	3.3
" of Hesse-Nassau	750	12.7	24.5	43.1	14.9	4.8
" Rhine Provinces	1,137	11.8	21.3	43.3	20.3	3.3
Hohenzollern	55	6.2	27.6	53.8	10.6	1.8
Prussia	16,157	5.7	9.3	31.0	28.4	25.6
Bavaria.	3,948	4.4	14.6	53.8	24.7	2.5
Saxony.	928	5.5	8.8	42.8	29.4	13.5
Württemberg	1,073	10.1	25.0	47.4	15.8	1.7
Baden	638	17.0	31.0	41.2	8.1	2.7
Thuringia	616	9.7	14.0	45.6	21.0	9.7
Hesse	396	14.1	24.0	49.8	8.8	3.3
Hamburg	18	19.4	6.5	28.1	37.5	8.5
Mecklenburg-Schwerin	833	3.7	3.2	10.8	24.1	58.2
Oldenburg	367	4.6	11.7	37.9	42.6	3.2
Brunswick	208	12.4	8.1	30.7	31.4	17.4
Anhalt	144	9.6	4.9	27.2	24.3	34.0
Bremen	15	9.8	7.2	29.2	53.1	0.7
Lippe.	68	17.7	12.6	25.1	37.0	7.6
Lubeck	17	6.9	3.9	10.6	59.1	19.5
Mecklenburg-Strelitz	151	3.3	1.7	7.6	29.1	58.3
Schaumburg-Lippe.	21	19.3	13.9	45.4	17.1	4.3
Total and percentages for the Reich.	25,598	6.2	11.4	35.8	26.4	20.2

tural land among the different size groups may be considered as fairly favourable if Germany is taken as a whole. But the case is quite other if the different parts of the country are taken separately. Side by side with regions of small family farms there are found others which consist exclusively of large farm undertakings. The districts where large farming predominates are situated mainly to the east of the Elbe. According to the farm census of 1925. in the two Mecklenburgs, in the districts of Königsberg (East Prussia) and in Stralsund (Pomerania) over 50 per cent. of the agricultural land consists of large farms, that is, farms of 100 hectares and over. In the remainder of Eastern Germany more than 25 per cent. of the agricultural land is thus farmed. West of the Elbe in the larger administrative districts, the proportion of agricultural land represented by large farms exceeds 25 per cent. only in the districts of Magdeburg, Merseburg and Anhalt. In West and Southern Germany only a small percentage of agricultural land is taken up by large farms, the percentage in Westphalia being 3.3 per cent., in the Rhine Provinces 3.3, in Baden 2.7, and in Bavaria 2.5. The differences in respect of size of farms are to be explained by a combination of various circumstances. In addition to differences in economic and social development, there are also the natural characteristics of the different regions, their soils and their climate. In proportion as soil and climate favour the development of large farming, land settlement inevitably becomes more difficult.

The objects it is hoped to secure by land settlement are, in Germany as in other countries, demographic and social in character. These objects are too well known to make a detailed statement necessary. A complete or partial breaking up of the large farms will bring about the conditions favourable to a higher population density in the districts. The population of the districts characterised by large farms has undergone a shrinkage due to a migration which has exceeded any desirable proportion. The main causes of this excessive migration can only be counteracted by means of land settlement and it is only by this means that sound economic and social, and hence sound demographic, conditions can be re-established in the districts of large farming. If the land settlement question is regarded in Germany at the present time as of pressing importance, this is due to a number of reasons. In the first place land settlement can contribute to the solution of the unemployment problem in so far as it brings about not only increased opportunities of farm work but also a brisker movement on the general labour market of the district. Moreover land is essential to settlement, and at present it is possible to acquire, without recourse to coercive measures, sufficient land from the large farms for parcelling out. In spite of many measures designed for their conservation, there is a number of large farms which cannot in the long run be selfsupporting, and the lands of which can only be kept under cultivation if they are parcelled out into family farms. Nor is there any lack of settlers. The numbers are very large of those who are ready to undertake the most arduous farm work if only there is a prospect of an independent existence. In spite of its exacting nature and the slender returns to be expected, farm work has once more come into repute, and at the present time it is no longer

possible to speak of a rural exodus. On the other hand the large towns and industrial centres yearly show larger losses from migration, although these are still relatively insignificant. There is slowly setting in a strong counter current to the rural exodus of the past decades. Land settlement thus stands for the combatting of unemployment and the raising of the population capacity of the relatively thinly settled regions and thus of the stable population, with an increase in the production of agricultural products in respect of which Germany is still an importing country.

The Land Settlement Act of the Reich dated 11 August 1919. — This Act forms the basis of the whole of German land settlement legislation. The purpose of this law which has been extended and modified by other laws was the establishment of new settlements (*Neusiedlung*) and the enlargement of existing small farms so as to make them capable of providing maintenance for the family (*Anliegersiedlung*). It is confined however to the establishment of the general lines to be pursued in securing land and of the organisation of the land settlement, while leaving the execution of the legislative provisions to the separate States.

The actual work of land settlement was placed in the hands of land settlement undertakings of public utility, and the States were obliged to form such bodies if not already in existence. It was left to the authorities of each State to establish the conditions under which the public interest might be safeguarded in such cases. The provincial land settlement associations of Prussia were taken as models. These organisations date back to 1906 and take the form of limited liability companies in which the greater number of shares is held by the State, the Province and other public bodies. Several States have made their own public authorities responsible for the carrying out of the settlement work. In Prussia the State Settlement Boards (*Kulturämter*) also function as land settlement public utility undertakings. These Boards do not however themselves undertake the work of settlement, but depute it to an individual, a company, co-operative society, commune or group of communes, provided any of these possess the qualifications necessary and are prepared to place themselves under the supervision of the *Kulturämter*.

The Land Settlement Act of the Reich makes provision for the supply of land required for the purpose in four different ways — apart from that of purchase on the open market:—

(1) State lands may be made available at the value of their returns on the expiry of the leases, provided that their retention as State property is not essential for purposes of instruction, experiment, or other purposes of public or economic utility;

(2) marshy or waste lands may be expropriated at the value of their returns, unless the owner undertakes to transform, within a period to be fixed, into cultivable land an area corresponding to his economic position;

(3) the right of preemption may be exercised by the public utility land settlement undertaking on agricultural land of more than 25 ha. situated in its territory, or on any portion of such lands;

(4) property of more than 100 hectares may be expropriated in certain regions.

In the land settlement district (a whole province being usually constituted as such a district), if more than ten per cent. of the area of agricultural land as ascertained by the farm census of 1907 is absorbed by farms of 100 ha. or over, the owners of these large farms are to be grouped into Land Supply Unions (*Landlieferungsverbände*). On the request of the public utility land settlement undertaking these unions are expected to place at the disposal of the former suitable land taken from the large farms. For this purpose the *Landlieferungsverband* has, in place of the land settlement undertaking, the right of preemption on all the large farms of its district, and, moreover, the right of expropriation of land for settlement to be exercised on land held as large farms as against compensation payment, provided it is not possible to obtain lands in any other way for the purposes of land settlement. The obligation on a union to supply land is however fulfilled, so soon as one third of the total area of agricultural land, as established by the 1907 census, has been made available for land settlement purposes, or when the area of agricultural land of these farms has fallen to 10 per cent. of the whole cultivable area of the land settlement district.

The power of the settler in respect to disposal of his holding of land was limited, the object of this restriction being threefold: to prevent speculation with land settlements formed with the help of public funds, to prevent the passing of such land into the possession of unsuitable persons, and to check subdivision. The Reich Land Settlement Act accordingly confers on the land settlement undertaking the power of repurchase on conditions to be stated in the contract, applicable in the case of the settler alienating the whole or part of his holding or of his not living permanently on the land or not farming. In the case of inheritance or succession, the retention of the land settlement holding in a single hand is guaranteed by the appropriate entry in the land register.

Finally the terms of the law enable permanent farm workers to obtain lands on a tenancy basis.

Financing of Rural Land Settlement. — Rural land settlement in Germany is financed at present virtually on the lines established in Prussia before the war. A distinction however exists between the credits made available either by the States or the Reich for general development of land settlement work, such as, purchase and assignment of the parcels of land, improvements, building, etc., and on the other hand the subsequent replacement of these by long term credits intended to enable the settlers to purchase their holdings.

The former type, or land settlement intermediate credits, are granted for a period of from two to three years per holding and at the end of that time are made available for another holding in each case. Up to the end of 1930 Prussia had made available in this way nearly 76 million RM. and the Reich 210 millions without counting the intermediate credits granted by the Reich for settlements on lands previously not cultivated and for special branches of land settlement. With a view to joint administration and in order to secure uniformity in regard to the

granting of these credits there was founded in September 1930, by the joint initiative of Prussia and the *Reich*, the *Deutsche Siedlungsbank* as an institution of public utility and of official standing with a foundation capital of 50 million RM. and a reserve fund of 50 millions.

As a settler is scarcely ever in the position to pay for a holding out of his own resources, and as on the other hand the land settlement undertaking must repay the intermediate credits, these credits have to be replaced by long term credits, an operation at the present time effected through the *Preussische Landesrentenbank*. This institution was founded by the law of 29 December 1927 by the amalgamation of the institutions which were formerly responsible for the provision of land settlement long term credit, viz., the *Preussische Provinzialrentenbanken*. On the application of the State Settlement Boards (*Landeskulturrämler*) the *Landesrentenbank* redeems the purchase amortisation sum (*Kaufrente*) agreed between the would be purchaser of the holding and the land settlement undertaking, taking over the rent charges in exchange for their own annuity bonds which are subsequently sold on the Stock Exchange on the account of the land settlement undertaking. Since these bonds are secured by a first mortgage on the holding as well as by the State guarantee, a mortgage loan up to 90 per cent. of the value of the farm can be obtained. With a yearly payment of five per cent. covering interest and amortisation, the loan is discharged in $69\frac{2}{3}$ years.

The powers and functions of the *Preussische Landesrentenbank* have been extended by the law of 31 July 1931. Whereas the Bank heretofore had no foundation capital, in future it will possess a capital and a reserve fund of 20 millions RM. each, paid half by Prussia and half by the *Deutsche Siedlungsbank*. The Bank is now empowered to issue annuity bonds covered by the annual payments of the *Landesrentenbank*, or mortgage bonds covered by mortgages. It may also take up loans, and take part in operations for obtaining land settlement credits. In addition, in virtue of the agreement made between Prussia and the *Reich*, institutions for land credit may in future be called upon to finance land settlement. As the terms of constitution of these institutions impose very narrow limits for the extent of their mortgage loans, they are empowered by means of the guarantee of the *Reich* to exceed these limits. The yearly interest on any higher sum being reduced by a *Reich* subsidy up to five per cent., so that for all land settlement holdings the annual instalment for interest and amortisation is the same.

In order to reduce the high costs of building, loans of from 4 to 6 thousand RM. are made by the *Reich* and by Prussia to every settlement holding, at an interest of only one per cent. amortisable after the sixth year at a rate of one per cent.

For adjustment of questions relating to communes, schools or churches, etc., a contribution up to 50 per cent. of the resulting expenditure is made by Prussia. The funds for these purposes allocated in the budget of the agricultural administration amounted in 1930 to 4.5 million, and in 1931 to 7.7 million RM.

In order to assist the settler at the beginning of his enterprise, the payment of interest charges is remitted over a period of up to two years, either wholly or partially according to the settlement district.

Farmworkers and Land Settlement. — With the expansion of land settlement activity in the course of the last few years, an increasing importance has attached to the question of what is to become of the farm workers formerly employed on the large estates which are now purchased for subdivision.

So long as the scope of the operations remained limited, no great difficulty arose. The labour was absorbed on the neighbouring farms, or the workers were established on small settlement holdings with opportunities of obtaining job work, etc. In some cases they emigrated. To reduce the inevitable hardships of the interim period, a supplementary clause was inserted in the *Reich* Land Settlement Act under which, in the case of farm workers or employees, who in consequence of the subdivision of an estate were temporarily or for a prolonged period thrown out of work, the land settlement authority was expected to provide at least three fourths of the wages they would have earned as an allowance for a period up to six months.

With the extension of the land settlement work and the more acute form assumed by the economic crisis, the provision thus made has become insufficient. The numbers who had been thrown out of work by the land settlement operations could no longer find work on the neighbouring farms, as even if these also were not undergoing subdivision, reduction of farm labour was going on in consequence of mechanisation, rationalisation and under the pressure of the crisis. As in other branches of industry so in agriculture the unemployment figures continued to swell running to some hundreds of thousands. With the increase in land settlement the problem of the farm workers could be no longer solved by their establishment on small holdings, on the contrary it became clear that, as there was very little to be earned by subsidiary occupations, the holdings previously assigned to the displaced farm workers were much too small. Hence there was an increasing tendency to settle the workers on larger holdings. It is indisputable that many of these farm workers possess all the best qualifications of good settlers. Their claim to preferential treatment in regard to land settlement was especially stressed in the Law of the Reich for promotion of agricultural settlement of 31 March 1931, and later in the regulations laid down by Prussia and by the *Reich* dated 10 November 1931 for agricultural settlement. At the same time it was decided to encourage the settlement of farm workers on small and independent family holdings by means of special credits and grants.

Results so far Achieved of Post-war Settlement Operations. — From the passing of the Land Settlement Act of the *Reich* in 1919 up to the end of 1930 the total area acquired or made available for the purposes of settlement was in all 750,000 hectares. This represents not quite 10 per cent. of the agricultural land of farms of 100 and over 100 hectares, which according to the farm census of 1925 amounted in Germany to 7,700,000 hectares. The area acquired or made available each year has increased from year to year, rising from 31,000 ha. in 1925 to 127,000 in 1930.

From 1919 to 1931 there were formed 49,000 new settlements as shown in Table II. Thus the original programme of 10,000 new settlements per year has been very far from fulfilled, but very decided progress has been made in the

TABLE II. — *Results of Agricultural Settlement in Germany in the years 1919 to 1931*

STATES AND PARTS OF STATES	NEW SETTLEMENTS						SETTLEMENT BY MEANS OF TAKING IN OF ADDITIONAL LAND IN OWNERSHIP (<i>Anliegersiedlungen</i>)					
	1931 1)		1930		1919 to 1931 1)		1931 1)		1930		1919 to 1931 1)	
	Number	Area ha.	Number	Area ha.	Number	Area ha.	Number	Area ha.	Number	Area ha.	Number	Area ha.
East Prussia	2,256	23,941	2,165	23,723	10,056	116,757	1,520	6,160	1,663	7,130	6,188	20,314
Brandenburg (3)	1,102	10,771	805	5,065	6,466	50,608	446	1,162	255	582	3,243	5,778
Pomerania	1,683	20,184	1,116	15,774	5,801	93,109	1,014	2,796	652	1,722	4,125	10,118
Grenzmark Posen West Prussia	153	1,924	194	2,200	1,145	20,516	166	663	55	156	441	1,307
Lower Silesia	877	6,769	559	4,296	4,328	35,578	2,979	5,173	1,206	1,863	22,553	31,069
Upper Silesia	387	3,361	337	2,647	2,151	17,628	1,923	2,202	883	1,116	12,425	12,020
Saxony	223	2,424	147	907	2,291	10,731	644	1,006	110	165	5,747	6,410
Schleswig-Holstein	671	8,203	1,224	15,719	5,071	66,976	43	171	28	65	824	2,755
Hanover	362	3,338	365	3,412	2,834	23,313	329	564	119	269	1,609	3,304
Westphalia	164	565	192	848	931	3,649	120	141	29	27	925	987
Hesse-Nassau	—	—	2	16	378	1,059	452	265	481	220	7,914	3,270
Rhine Provinces	36	448	41	325	206	1,347	41	71	86	98	887	626
Prussia	7,914	81,928	7,147	74,932	41,658	441,271 2)	9,677 2)	20,374	5,567	13,413 2)	66,861 2)	97,958
Bavaria	182	1,813	4	23	1,413	4,132	485	487	361	318	8,573	7,657
Saxony	2	46	8	160	50	1,038	83	86	277	224	1,250	687
Thuringia	5	84	3	111	194	1,371	162	196	183	268	1,819	1,941
Hesse	—	—	1	5	1	5	124	30	385	135	1,374	467
Mecklenburg-Schwerin	768	10,556	673	9,130	3,159	40,861	162	374	401	1,015	2,634	7,091
Oldenburg	73	501	140	1,092	1,105	8,512	238	399	167	417	2,514	4,616
Brunswick	—	—	—	—	21	180	—	—	—	—	355	603
Anhalt	—	—	—	—	10	98	—	—	7	8	36	68
Lubeck	—	—	—	—	145	29	—	—	—	—	25	17
Mecklenburg-Strelitz	99	2,034	25	498	353	5,708	—	—	—	—	247	370
Other States	3	1	7	2	833	438	—	—	30	64	159	274
Reich totals . . .	9,046	96,963	8,008	85,953	48,942	503,643	10,931	21,946	7,378	15,862	85,847	121,659

1) Preliminary figures. — 2) Including some 900 farm extensions created, 3) Including Berlin. *Wirtschaft u. Statistik*, 1932, No. 8 Berlin, R. Hobbing.

technique of land settlement operations and much light has been thrown on the problems connected with the subject. Not one of the least important results has been the formation of an expert staff which is the best guarantee for the success of land settlement activity in the years to come when it is expected that for the reasons already indicated there will be a very considerable extension of the operations. There is already a significant increase in land settlement activity over the past new years, the number of new settlements formed in 1931 being 9,046, as compared with 8,008 in 1930, 5,545 in 1929, 3,372 in 1927 and 1,725 in 1925.

The success of the settlement work depends largely on the right choice as regards size of farm and diversity of farming operations. In any individual case, and in any given conditions of transport, marketing and climate, the extent of land that will secure a proper maintenance to the settler — apart from farms on which a subsidiary occupation is essential to subsistence — must depend primarily on the direction given to the farming and on the nature of the soil. For a number of reasons it is not desirable to establish a rigid scheme in respect to the size of farms. It is now practically unanimously agreed that in the first years of the post-war settlement the number of small holdings formed was excessive. The investigations of the agricultural sub-committee of the Committee of Enquiry of the *Reich* (1) established this same fact, *viz.*, that the small size of settlement holdings was the principal reason for the frequent change in ownership noted by the Committee. In particular the newly formed holdings for the farmworkers were in many cases too small. In the last few years a noticeable change has come about in the size categories adopted. As will be seen from Table III, the proportion of small holdings under two hectares is steadily decreasing. In cases where the soil is poor, or is so heavy that it cannot be worked by a single team, it appears advisable in assigning land, and it is becoming increasingly the practice, to exceed the 15 hectare limit usually regarded as sufficient to provide for the needs of a family.

Settlement by taking in additional land (*Anliegersiedlung*) has also received fresh impetus during the last few years. Lands thus assigned for enlargement of existing holdings may either be owned or rented with or without right of purchase. In the first post war years a large number of such additional plots for the most part of very small extent were assigned as tenancies, at the present time on the other hand this method of enlargement is not often adopted, and the additional plots are almost always assigned in ownership.

In the Land Settlement Law of the *Reich* provision was also made for assigning lands in tenancy to farm workers. This method has never been at all generally adopted and will in future be applied only in special cases.

The figures relating to the extension of land settlement activities naturally do not in themselves prove anything as regards the success of the schemes. The success or otherwise must be judged by the extent to which the ends proposed have been attained.

(1) Ausschuss zur Untersuchung der Erzeugungs- und Absatzbedingungen der deutschen Wirtschaft. Das ländliche Siedlungswesen nach dem Kriege. Berlin, 1930. E. S. Mittler und Sohn.

TABLE III. — *New Settlements according to Size Categories (1).*

	Total number of New settlements	With total area of hectares					
		under two		two to ten		ten and over	
		Number	%	Number	%	Number	%
1919-1926	18,718	9,183	49.1	3,191	17.0	6,344	33.9
1927	3,372	1,363	40.4	633	18.8	1,376	40.8
1928	4,253	1,349	31.7	867	20.4	2,037	47.9
1929	5,545	1,591	28.7	1,241	22.4	2,713	48.9
1930	2) 7,441	1,648	22.1	2,164	29.1	3,629	48.8
1931 (1)	9,046	1,352	15.0	2,952	32.6	4,742	52.4
(1) Total . . .	48,375	16,486	34.1	11,048	22.8	20,841	43.1

(1) Preliminary figures. — (2) Not including 567 holdings with total area of 6,120 hectares — in regard to which no information as to size category was supplied — transformed in the course of settlement from tenancies into owned property of the former tenants.

No proof is required of the fact that, as a result of land settlement work, the social structure of the districts in which there was a predominance of large farming has been completely transformed. It may further be stated as universally true that since the subdivision of the large estates the farming methods have become more intensive. It is also indisputable that land settlement has brought about an increase in the rural population and has revived the whole industrial and economic life of the region. But these favourable results can only achieve permanence and extension if economically sound possibilities of existence have really been created. At the present time the outlook of settlement farms is by no means satisfactory. It is not to be wondered at, if many of these farms, heavily burdened as they are, find themselves in difficulties, seeing that so many of the original family farms cannot find a maintenance in the present economic situation. These difficulties however date only from the aggravation of the crisis during the last two years. Up to then the position of the settlers was on the whole regarded as comparatively satisfactory, the settlement farms showed considerable powers of resistance to the crisis, and the percentage of instalment payments in default remained small. If to-day these payments fixed under former conditions have become in many cases altogether too heavy a charge, this is not to be considered as reflecting on the land settlement schemes. The charges were established when the general situation was quite different, and when such an aggravation could in no way have been anticipated. An endeavour has been made to adjust demands to the present difficult position of the settlers, by remitting 50 per cent. of these payments for the financial year 1931-32

The causes to which is due the excessive burdening of the settlements formed up to the present time are: the payment of too high prices for the land, the additional heavy expenditure incurred by the undertaking that the large estates purchased should continue under cultivation up to the completion of the subdivision, and finally the erection of large and often costly buildings. Recently it has proved possible to make economies under all these heads of expenditure. Prices of land have everywhere fallen considerably. As regards farming during the period between purchase and final assignment (*Zwischenbewirtschaftung*), and as regards erection of buildings, there has been a gradual transition to a more extensive system of settlement. Under the former system the holdings were offered to applicants in a state of complete readiness for farming and with adequate and even sometimes very spacious farm buildings. In future, according to the regulations agreed between the Reich and Prussia dated 10 November 1931 in respect of the execution of agricultural settlement, the settlers will so far as possible be grouped from the first assignment of land, and will be set to work at once on the preliminaries of settlement. The existing buildings are to be as far as possible utilised, and the number of new buildings will be strictly limited. The further development of the settlement will remain the business of the settlers. Settlement will thus be carried out more cheaply and a larger number of persons will benefit. The resulting differences in comparative costs and in charges, partly also due to the fall in purchase prices, building costs, etc. appear from the following figures, which are taken from a communication made by the Minister of Agriculture of Prussia at a reception of journalists (1).

The yearly average costs of a 15 hectare settlement holding are shown to be as follows:—

	Land	Buildings	Total costs	Paid on account	Mortgage on house rent tax	Remainder of the purchase price
1928	21,000	19,000	40,000	5,000	5,000	30,000
1932	12,000	7,900	19,900	2,000	3,000	14,900

The average charges burdening the two farm holdings were as follows:—

	1928	1932
Mortgage on house rent tax	5,000 at 1 % = 50 RM.	3,000 at 1 % = 30 RM.
Remainder of purchase price	30,000 at 5 % = 1,500 »	14,900 at 5 % = 775 »
Total	<u>1,550 RM.</u>	<u>805 RM.</u>
	or per ha. 103.33 RM.	or per ha. 53.66 RM.

(1) See: *Archiv für innere Kolonisation*, Heft 4, 1932, S. 143. Berlin, Deutsche Landbuchhandlung.

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MARKETING OF AGRICULTURAL PRODUCE

World Production of and World Trade in Table Grapes.

I. — THE PRODUCTION OF TABLE GRAPES.

(a) *Consumption of fresh grapes in the past (up to 1850).*

The fruit of the vine, the grape, normally enters into human consumption under three forms: as fresh fruit, dried fruit (raisins, sultanas, currants, raisins in clusters for table use), and as pressed juice (wine and unfermented grape juice). There are in addition other methods of using grapes, but of secondary importance in the total production, for example, their utilisation for the manufacture of wine jellies, confectionery and in similar ways. Transformation of fresh grapes into one or another of these products is usually carried on in close proximity to the vineyards – apart from the conditions existing in the United States in consequence of the prohibition measures which run counter to any normal development. Grapes transported over long distances are usually those intended for direct consumption, or table grapes as usually known. From the commercial standpoint, table grapes belong to the class of fruits known in English parlance as «soft fruits», the term also including pears, plums, cherries, apricots and peaches, as distinguished from other kinds, as for instance apples, citrus fruits, etc. by their greater tendency to spoil.

Wherever wine-making is carried on grapes are also consumed in the fresh state. It was however only in the latter half of last century that there began

to be for table grapes, as for other fresh fruit, a production in excess of local requirements. Up to that time any extensive production of grapes in historic times had been exclusively for the purposes of wine-making or the dried fruit product. It was for wine making purposes that in pre-Homeric times the cultivation of the vine had been already transported from the interior of Asia to the eastern littoral of the Mediterranean basin. In the succeeding centuries this cultivation was extended to the other Mediterranean countries and to the neighbouring regions. Owing to the ease with which wine could be transported in wooden casks or in skins there was already in the earliest historic times an extensive international trade in wine. Later the monastic orders in the course of their missionary and colonising labours became pioneers of the cultivation of the vine also in the remote and undeveloped Northern regions, such as Northern France, the southern countries of England, Thuringia and Brandenburg. In these countries vine-growing only lost its importance when it became possible to obtain a regular supply of wine from the warmer countries.

While the extension of Christianity tended to further that of vine-growing, the rise of the religion of Islam had the opposite effect. The followers of the Prophet are forbidden the use of alcoholic beverages, and the result of this was a decay of vine-growing in all the regions that came under the influence of Islam. These included many countries that had been renowned in antiquity for their wines. Although, however, in Western Asia, North Africa, Greece, Sicily and Spain there was a shrinkage in the area under cultivation for wine, the cultivation of the vine plant did not entirely disappear. In nearly all these regions a part of the population had preserved their former faith, and these were permitted by their Mahometan conquerors, who generally showed a certain tolerance for the traditional customs of those of another faith, to continue the cultivation of the vine and to manufacture wine. Sometimes, it is true, particularly zealous rulers, such as Hakem II in Spain, undertook destructive campaigns against the vine, but in principle Mahometan subjects were allowed to own and to plant vines. Where the manufacture of wine was forbidden, the production of dried grape fruit or raisins began to be adopted. For climatic reasons the districts most indicated for this production were those of the eastern basin of the Mediterranean in which the Islam domination was more or less permanent, and where, in consequence, the cultivation of grapes for the wine press had no such chance of revival as actually occurred in Spain when freed from the Mahometan yoke and once more Christian. The production of dried grape fruits became a decisive economic factor in some regions, *e. g.*, the islands of Southern Greece. In the XVIIth century, if not earlier, the English maintained permanent consulates in the most important centres of production in the interests of this trade, including even an island as small as Zacynthos. These areas have succeeded in maintaining their predominant position in the international trade in dried grape fruits, although this position is not so strong as it was previously.

As in the wine-growing districts of the Mediterranean and neighbouring regions, so in the overseas countries the production of grapes for consumption as fresh fruit was of little commercial importance up to the last half of last century.

Speaking generally, in the greater part of the more important extra-European regions of production, the cultivation of the vine had up to that time no special importance. In North America, it is true the first immigrants often found on the Atlantic coast wild vines growing luxuriantly which were not however under regular cultivation. In South Africa and in Australia the vine only reached these countries with the European immigrations at the beginning of the 17th or at the end of the 18th century respectively. As had happened in Europe, so in the overseas countries, missionary societies made it their business to introduce the vine in areas where it had not been previously known. In particular the great vineyards planted by the Jesuits in Southern California at the end of the 18th century became the starting point of an immense production, and it is to this fact that California owes in our own days the dominating place in the production of grapes in the United States of America. In the zones of vine cultivation not so far mentioned, Central Asia and the Far East, especially in the province of Shantung and in the more distant territory of Shanghai, to judge from the present position of growing of table grapes and from the excellent quality of the fruit — it would seem probable that in earlier times large quantities of table grapes were already brought to the market.

Grapes consumed as fresh fruit in wine-growing regions have never formed more than a small part of the crop. The period of the vintage only lasts approximately two or three months and in addition the grapes, once cut, do not keep in ordinary temperatures more than a few days, especially in the warmer producing regions where no special means of conservation are in use, such as packing in cork sawdust. Such methods were known comparatively early, but were not systematically employed, since for the purpose of the personal requirements of the grower they were scarcely worth the trouble. While agriculture proper was predominant, the absorption power for grapes of the markets in the immediate vicinity of the vine growing regions remained undeveloped, and owing to the tendency of the product to rapid spoiling trade at a distance could not develop. Hence the economic conditions for production of table grapes were absent. Up to the middle of last century the distinction between wine grapes and table grapes did not exist in the wine growing regions proper.

On the other hand, outside these wine growing regions, there developed at the beginning of modern times in the regions of Northern Europe less favoured by the climate, that is to say, in Northern France, in Holland, Southern and Central England, and later also in Russia, a horticultural production of table grapes which was characterised by selection of varieties and by special methods of cultivation. The great economic prosperity of these countries in that epoch gave rise to a demand among the wealthy for the costly products of the vine grown as espalier vines or in hothouses. Espalier methods were predominant in Central and Northern France and in Southern Holland, and hothouse cultivation in the South of England and in Central Germany. Hothouses were the natural adjuncts of the estates of the wealthy classes. The hothouses of Fontainebleau, Versailles and Sanssouci were among the best known. Usually this cultivation was not a commercial enterprise and the grapes obtained did not come upon the market, and were exclusively consumed in the fresh state. In pictures by Dutch artists of

the XVIth and XVIIth centuries specimens of these choice grapes often appear as adorning the tables of persons of quality. The demand for wine was much better met by bringing in wines from the southern countries. From the point of view of quantity the production of espalier or of hothouse vines was quite insignificant. It may thus be affirmed that up to the middle of last century the production of table grapes was merely subsidiary to that of wine grapes or dried vine fruits.

(b) *Modern Development of the Production of Table Grapes.*

As railway and steamboat transport took the place of the older methods, a decisive change came about also in the domain of production of and trade in table grapes. It was about 1850 that the first table grapes appeared on the international market and since that time this product has become a regular factor. Even with the new possibilities of consignment, however, it is only at certain relatively few points of the immense vine-growing area, which extends over a great number of countries situated in the temperate and sub-tropical zones of all the continents, that it has proved possible to develop a production of table grapes of any considerable volume. Such production is dependent primarily on climatic conditions, a fact which practically rules out, as regards commercial cultivation of table grapes in the open, these regions that are situated along the northern limit of vine cultivation. It is true that there are some exceptions such as the extensive open-air cultivation of table grapes in the Channel Islands. In general however in the northern regions, the southern limit of which coincides in Europe very nearly with the chain of the Alps, the frequent late frosts make it possible to grow only varieties which make their shoots late. The grapes forming on these vines in consequence do not develop, except in years when there is much bright sunshine, the degree of sugar required for consumption as fresh fruit. Even in meteorological conditions favourable to growth the frequent heavy rainfall during the vintage season often render impossible, owing to the thinness of the grape-skins, the marketing of the bunches for direct consumption. Gathered during rain the fruit is unattractive in appearance, spoils extremely quickly and in consequence cannot be packed for market. Even when the grapes are well grown and have been cut in dry weather, in size of berry and of cluster they cannot compete with the superior kinds that come from the South. Accordingly in the regions in question, which include nearly the whole of the areas under vine cultivation in Germany and Austria, as well as large areas in France, Czechoslovakia and Hungary, the unfavourable conditions for production have resulted in a concentration on the growing of wine grapes, and this is done the more purposefully because the vines of those regions yield fine wines of first quality which command high prices. The consequence is that these regions, in spite of the extensive areas under vines and the progressive nature of the methods employed, import large quantities of table grapes, and form, together with the more northerly countries, the main importing territories for this product.

The further south are the vine-growing regions, the more favourable are the climatic conditions for the cultivation of table grapes. The sugar content

of the berries increases, the berries themselves become larger, the clusters longer; the weather during the harvesting period is more assured. The southern border of the vine growing zone is marked out for the cultivation of table grapes. During the bright sunshine of the long summers the berries acquire a high sugar content, attaining a large size while the skins thicken. In these latitudes heavy rainfall is rare during the harvesting period, and even if it does occur the grapes are protected by their thickness of skin. It is true that with much rain the stems tend to soften and wrinkle up if the fruit is kept long in storage, but the quality of the grape is not impaired. The bunches can be packed in excellent condition, and owing to the thickness of the skin can stand long distance transport. In many cases, as in that of Spanish Almeria grapes or Crimean varieties, given the proper technical installations, storage may be continued from three to five months. These grapes are naturally preferred on the markets, and command high prices especially when they are offered for sale outside the regular season. Speaking generally, the production of table grapes has become much more profitable than that of wine grapes in the vine-growing regions with a favourable climate.

The first attempts at transition from cultivation of wine grapes to that of table grapes, a transition which later led to the formation of areas exclusively devoted to the growing of table grapes, were made in the South of Europe, near the southern border of the vine-growing belt, the reason being that the transport to consumption areas would not involve much time. The starting point of the international trade in table grapes thus became the Spanish province of Almeria in the south-east of the Peninsula, one of the most southerly regions of Europe. From that time onwards Almeria occupies a decisive position in the trade in table grapes. With the growing economic importance of the export of table grapes the type of grape produced has changed in several respects. The kinds of grapes grown are increasingly selected in view of their suitability for sale as fresh fruit, and special importance is attached to firmness of skin and to looser clustering. This latter is important for marketing purposes, as the ordinary wine grape kinds with the berries closely packed together cannot easily be eaten except by chopping up the bunches. Almeria grapes are undoubtedly some of the finest outdoor table grapes in the world, and for that reason have been imported into other regions where it is desired to plant vineyards for production of table grapes. In Italy also the best table grapes are grown in the South. Sicilian grapes are mainly sold as luxury products.

Apart from choice of varieties, a transformation in technical production methods occurs in regions where table grapes are grown, and although remaining the same in principle these methods are now adapted to the new end in view. Taken as a whole the growing of table grapes is the most intensive form of vine growing. Usually the vineyards are more heavily manured, and greater care is given to the plants. In Spain and in South Africa, for example, if grown for wine, the vines are kept quite low and short, whereas the table grape vines of Almeria are trained on wire trellis-work to the height of two to two and a half metres. Great attention is devoted to the pruning of the stocks and to the training of the shoots, as on the right treatment in these respects depend in great measure the uniformity,

the time for ripening, as well as the quality and resistance of the clusters. In some districts special measures are employed, such as artificial pollination, ring-barking (or removal of a narrow ring of bark below the lowest bunch), and thinning of berries. Artificial pollination is requisite for kinds such as Almeria, Frankenthaler, Razaki rosso, Bamberger, muscat and others, as otherwise there is a tendency to uneven ripening or even imperfect setting of the fruit. Ring-barking is practised with a view to securing a better crop of fruit as well as early ripening. This treatment however undoubtedly often results in too rapid a ripening tending to lower the sugar content and diminish the keeping powers as compared with the normal ripening process. In spite of these drawbacks, the process is frequently employed in the Spanish vine-growing districts, the object being to be able to place on the market an early supply of the late ripening kinds. Thinning is indispensable for obtaining sound uniform bunches of good appearance for the export trade. The amount of thinning depends on the variety. In many localities it is the practice to thin three times, the first when the berries are one eighth of an inch in diameter. All small or poor berries are removed, and in addition some of the sound ones, so as to give the bunches that looser structure which cannot be secured by selection of varieties alone. Sometimes up to two-thirds of the berries are removed in the course of the thinning. It is essential to proceed with the greatest care, as a small injury is enough to make the grapes unmarketable. Special bluntnosed scissors are used.

The gathering of grapes for table use involves much additional labour as compared with the gathering of wine grapes. In fact the methods of harvesting are the characteristic most strikingly distinguishing the the cultivation of table grapes from that of wine grapes. Whereas the latter are usually cut all at one time and are carried just as they are in great vats to the press, in the case of table grapes the vines must be visited many times so as to cut each time only those that are at the right stage of maturity. After cutting, the bunches are trimmed while still in the picker's hands, then laid separately in small boxes, taken to the different points of concentration where they are repacked in larger boxes or in casks. The greatest care must be exercised over the whole process, as even trifling damage done to single berries sets up decomposition and will often spoil the contents of whole casks. The technique of harvesting in the case of table grapes has undergone constant improvement and in California especially has been brought to a high pitch of perfection. It may be added that methods of growing vary in accordance with natural conditions and with traditional usage.

The development of the cultivation of table grapes in the southern areas of the vine-growing zone naturally depended on the possibility of convenient transport to the principal markets, such as England, Germany and the United States. Owing to backward conditions of internal transport and to their less favourable geographical position, the Balkan States and the countries of the Near East have not been able to supply grapes on the world market, and in spite of their excellent varieties of table grapes have completely neglected this branch of viticulture. Greece forms an exception having developed the production of table grapes so far as to meet the limited absorption capacity of the Egyptian market. The other Balkan countries especially Bulgaria and the production areas of Asia Minor

have only been able within quite recent times to enter into relations with the world market, and in some cases remain still out of touch. For this same reason California was for a long time unable to grow or to trade in table grapes, and it was only at the beginning of this century that this country could overcome the transport difficulties, since when it has won for itself a predominant place in the supply of table grapes to the United States.

The production of table grapes has also gained ground in the central regions of wine production, especially in Central and Northern Italy, the most northerly part of which was included before the war in Southern Austria, and also in France. The grapes grown for the table in these regions cannot however as regards quality compete with grapes grown in the South. The vine-growing of these regions occupies a middle position, not only geographically but also as regards its whole structure, between the southern region of cultivation of table grapes and the northern region of wine grapes. The greater part of the whole area under vines is used for the production of wine grapes; here and there are found plots exclusively cultivated in table grapes. As a third form may be found the combined cultivation of the two types of grapes. This combined type of cultivation is the one of most importance in this zone for the production of table grapes, and has developed mainly as a consequence of the climate. The grapes mainly grown there are of a type intermediate between the definitely wine kinds and the table kinds and can be utilised for either purpose. As table grapes they are however of mediocre quality only and for this reason, even in favourable years, they do not fetch more than moderate prices. The weather in these zones is undoubtedly more assured than in those of the northern border of the vine-growing belt, but it cannot be entirely relied upon. For these two reasons viticulture cannot well be confined to the simple production of table grapes. The technique of production is in such cases adapted to the twofold purpose pursued. The degree of intensive cultivation is generally speaking less than that employed for table grapes alone, and higher than that in use for wine grapes. In consequence the costs of production are lower than in the regions of table grape growing proper, a fact which together with the shorter transport to the markets tends to compensate, at least partly, for the lower prices obtained on account of the less good quality of the fruit.

As a general rule, one or the other form of utilisation is predominant and the organisation of the farm which is closely connected with the harvesting and marketing of the grapes acts as a check on any change. On the other hand the grower's actual decision as to the destination of his grapes depends largely on the weather at the time of harvest and on the relation between the prices of wine and those of table grapes. Naturally the price developments of a season cannot be readily forecasted precisely, so that growers often alter their plans during the course of the harvesting. Generally speaking, when the prices of wine are falling there is a noticeable increase in the consignments of table grapes, while the quantities of grapes sent to the wine press increase when the prices of table grapes are on the decline. On the other hand even when the price of wine is favourable and those of table grapes unsatisfactory, the growers may be driven by shortage of ready money to sell their grapes for consumption fresh, for the

reason that table grapes are paid for in cash immediately or very soon after the gathering, whereas wine is saleable only after months or even years. Considerations of this kind have great weight and may be held responsible for the large increase in the offers of table grapes during the last few years in the regions in question which are suffering from an acute shortage of ready money, difficulty in obtaining credit and heavy indebtedness.

With the increase in demand, the proportion between the prices of wine and the prices of table grapes, from the international standpoint, has altered in favour of the latter. The consequence has been that the area cultivated exclusively in table grapes has been extended, especially in Spain, but also in France, Italy, Algeria and the United States and that the districts where viticulture is undertaken for both purposes, as in France, Italy, Austria and Hungary, have placed increasing supplies of table grapes in the market.

In addition to this general extension of production, the growing of hothouse grapes has assumed considerable importance during the last 25 and 30 years, not so much in regard to the quantity produced as on account of the excellent quality.

Production under glass has, it is true, lost much of its importance in northern countries since the middle of last century owing to the regular supply of grapes from the southern countries at relatively low prices. If this production under glass has not entirely disappeared in consequence of this competition, as has happened with the hothouse production of citrus fruits and pineapples, and if, on the contrary, there has been a considerable revival within recent years in Belgium, the Netherlands and also in Japan, the reasons seem to be as follows. While the cultivation under glass of oranges and pineapples, in spite of extremely high growing costs, gave only very poor results from the point of view of quality and quantity, viticulture under glass yields fruit which, thanks to its excellent quality, command higher prices than the best products of the vineyard, while the quantity produced per unit of area is also satisfactory owing to the fact that economy of space can be better observed when vines rather than trees are grown. Production costs are reduced in comparison with those of growing oranges or pineapples by the fact that vine houses require little or no heating. It is an important factor that by use of special methods of cultivation and by regulation of the temperature, the main crop of hothouse grapes can be brought to maturity during the months when the supply of table grapes on the markets small and when prices for first quality grapes are high. It must be remembered also that with a product alike so bulky and so fragile as the grape, the shorter distance from the locality of production to the principal markets makes it possible to meet competition even with high costs of production.

The development of the production of table grapes continued in the post-war years and the progress made in the last few years from 1925 onwards has been especially marked. This is due to two causes, the first being the increasing demand for table grapes despite certain interruptions, and secondly the crisis on the wine market at first limited to certain countries but from 1926-27 becoming an international phenomenon. The elimination of vineyards unfavourably situated or of low bearing capacity, as was frequently effected in the South of France and in Italy, resulted in temporary improvement only of the

situation. Hence as a recognised way out of the difficulty growers were recommended to transform their system of production in the direction of table grape growing. In almost all the viticultural areas from that time onwards a marked extension of this production is noticeable, alike in the districts which had been formerly devoted exclusively to wine grapes and in those where there had been a combination of both forms of grape growing. As the hopes of a rapid improvement in the wine crisis became fainter, the growers in these latter districts gradually changed over completely to table grape growing, more particularly in Italy, France and Hungary. It was also taken up in countries in which it had formerly had little or no importance, as in Greece, Bulgaria, Rumania and Yugoslavia among the Balkan countries, and in the Near East in Cyprus, Syria and Palestine. Finally and in spite of extremely unfavourable conditions of production the German growers have been induced by the great difficulty experienced in marketing wines to embark on the production of table grapes, although up to the present without any great success.

In the overseas vine-growing regions the same course of development may be observed as in Southern Europe. Alike in California, which before the war was the only large centre for production of table grapes, and in South Africa, Argentina and Australia, where the pre-war production did not even meet the very small demand of that time, growers have displayed great energy in turning over to table grape growing and have even begun to export to the European markets. Despite the immense distances separating these countries of the Southern Hemisphere from the principal markets, these efforts to build up an export trade have not been vain, since these grapes arrive on the European markets at a time when there is only a small supply of Belgian glasshouse grapes and when there is but little fresh fruit of any kind on the market.

In the United States production has gone on by leaps and bounds and in consequence since 1925 the prices on the market of table grapes have undergone great depression in spite of the restrictions on sales.

Similarly in Europe the offers on the market in 1930 were extraordinarily large and still more so in 1931 which was in nearly all the regions a year of grape harvests much above the average. The year 1931 accordingly marked the abrupt fall of the prices of table grapes. This movement began on the markets of the purchasing countries and extended to these of the producing countries, since perforce a large proportion of the product had to be offered for sale within the countries themselves. The losses due to this fall in prices fell most heavily on the growers of the inferior kinds as even under normal condition a large proportion of the price is absorbed by transport and marketing costs. In many cases, in France and Italy, the exporters succeeded only in covering the transport costs and the customs charges. In some of the producing regions, as in France, the result has been, in spite of the continuance of the crisis on the wine market, to reduce, at least for the time being, the greater stress laid on to the production of table grapes. A retrograde movement towards utilisation of grapes as wine grapes has set in, at least in respect of the inferior kinds, for which the marketing conditions are especially difficult, because they must be thrown upon the market within a relatively short time. The larger proportion of the grapes coming from

France, Italy, Hungary and also from the Balkans ripen during the months of August and September and must be sold immediately after the gathering. Storage is impracticable on account of thinness of the skin. If, as was the case in 1931, there is also a surplus of other fruits, and especially of peaches, the price movement cannot fail to be catastrophic. At the same time the prices of the better kinds of table grapes including the best qualities, in so far as they come on the market at the same time as the grapes grown under glass, have been involved in the price fall. The only exception is that of the Spanish grapes which have the great advantage of keeping over several months, owing to their packing in cork sawdust. In this way it is possible to wait to place them on the market until all the other kinds have been sold. This explains the fact that the German retail prices of Spanish table grapes scarcely fell at all during the winter months of 1930-31 and 1931-32 as compared with previous years.

It is impossible to forecast the future development, the world economic crisis having destroyed all bases on which a judgment could be made as regards the future. It would seem however that the continuance of the crisis in marketing of wine tends to make the growers attach more importance to the production of table grapes of high value which are really worth the trouble of packing in cork sawdust and storing over prolonged periods. Such procedure would diminish the severe depression of prices during the period of the principal supply of the markets, but on the other hand it would encourage a tendency to low prices. How far these will still permit of the sale of table grapes depends on the offers made of other kinds of fruit and generally on the purchasing power. In any case the competition in regard to table grapes appears to be increasingly in respect rather of quality than of quantity.

The development of the production of table grapes up to the present position cannot be traced in any exact statistical detail on account of the lacunae existing in the agricultural statistics of the most important producing regions. Up to the present time very few countries make any attempt at distinguishing between wine grapes and table grapes. Spain, for example, and the United States as a whole, do not yet separate these at all, and Italy has only done so since 1929. In effect serious difficulties are found in making such a distinction from the fact of the wide extension of the method of combined production. So far as it has been possible to obtain figures on the development of production they have been inserted in the tables relating to the different countries in the concluding section of this article. Supplementary data are supplied by the figures reproduced later for the development of the international trade in table grapes, although it must be remembered that a relatively large part of the production is consumed in the actual producing regions. In this respect Australia and the United States lead, the proportion of the total production consumed in the country being in either case about 90 %. In France and Spain also the greater part of the table grapes grown are consumed within the country. Even in the case of Italy which exports relatively the greater part of its production, more than half the product in recent years has remained within the borders.

The present situation of the world cultivation of table grapes may be seen from the following table in which, so as to make clear the importance of the growing

of table grapes for the different viticultural regions, the total production in grapes is also given. This table is however unfortunately incomplete. The regions of European production do not include: Portugal, Czechoslovakia, Bulgaria, Hungary, Rumania, Belgium and the Netherlands; in Africa, Algeria is omitted; and the Asiatic regions do not include: Cyprus, Syria, Palestine, India, Persia and the Far East. The following areas in the American continent are also omitted: the Eastern and Central States of the United States, Argentine and Chile. In none of these countries has an enquiry been carried out as yet on the extent of the production of table grapes.

	PRODUCTION OF GRAPES		INCLUDING TABLE GRAPES	
	ha.	1000 quintals	ha.	1000 quintals
France (1928)	1,583,980	60,321	22,160	1,112
Greece (1928)	229,362	5,132	11,930	350
Italy (1929)	—	74,960	—	775
Spain (1929)	—	40,935	—	appr. 2,000 (1)
French Morocco and Tunisia (1929)	—	—	—	716
Union of South Africa (1925-26) .	—	—	—	139
Korea (1929)	—	—	—	8
California (1929) approx.	275,000	16,443	63,200	2,808
	(1926)		(1926)	
Australia (1928).	42,967	2,448	2,912	125

(1) In default of official statistics the calculation was made on the basis of several estimates, according to which table grapes represented from four to six per cent. of the whole production of grapes.

Taken altogether, the production of table grapes of the countries shown in this table is approximately 8 million quintals. Apart from the regions of Central and Eastern Asia where the data available are so scanty as to render impossible any estimate of the volume of production, world production in table grapes may be estimated at from nine to ten million quintals. California stands first with approximately 30 per cent. of the whole; next come Spain with approximately 20 to 25 and France with 10 to 15 per cent. The production figures of Morocco and Tunisia appear to be exaggerated as there is no considerable export from these two countries. Italy represents approximately from 8 to 10, Greece 4 to 6 per cent., the remainder is accounted for by South Africa and Australia. It should be added that the production of grapes under glass, so far as it is possible to draw conclusions from the export figures of the Netherlands and Belgium, would seem to be from 150 to 200,000 quintals.

II. — THE INTERNATIONAL TRADE IN TABLE GRAPES SINCE 1850.

(a) *The exporting and importing districts.*

The recent development of the international trade in table grapes appears from the figures of the following table, in which with a view to ascertaining the total volume of the trade the exports and imports of the different countries are set out at ten year intervals beginning from 1901-1903. Some countries which

regularly export table grapes of their own production but also import, such as France, Belgium and the Netherlands, have been inserted on both sides of the table, and similarly those which in the course of their development have changed in this respect, such as the United States, Russia and Rumania. The re-exports of the importing countries have been deducted from the imports, when it has proved possible to ascertain these re-exports with precision. In regard to the earlier phases of the international trade in table grapes from about 1850 to 1900 the necessary statistical material is only partially available. The exports appear regularly as larger than the imports, which is easily explicable from the fact that, at that period the imports of grapes of most countries were still an inconsiderable part of their whole trade balance, whereas the exports, owing to concentration of production in quite a few countries, were relatively large and were enumerated separately on account of their importance to the exporting countries. Speaking generally the export figures when added together probably correspond to the real extent of the international trade. It is true that up to 1870 the large figures for the exports from Italy and Portugal were not available. It may perhaps be concluded from the later development that the grape exports from these two countries together before 1870 were as large as those of Spain which up to that time appears in the statistics as the only exporting country. To obtain an approach to the real facts the total figures for the period before 1870 should consequently be doubled.

Development of the International Trade in Table Grapes during the XIXth century.
(in 100 quintals)

EXPORTING COUNTRIES	Average of the years				
	1851-53	1861-63	1871-73	1881-83	1891-93
France	—	—	—	—	(1) 22
Italy	—	—	(2) 260	(3) 824	1,728
Portugal.	—	—	(4) 25	(5) 153	100
Spain	5	(6) 40	(7) 364	1,614	2,203
Total	5	40	649	2,589	4,053

(1) Average 1892-93. — (2) Average 1874-76. — (3) 1881 and 1885. — (4) 1871 and 1873. — (5) 1882. — (6) 1863. — (7) 1873.

From 1900 onwards the total figures of the imports and exports show fairly satisfactory agreement. From 1911-13 the differences amount only to small percentages. Contrary to what had occurred earlier, the import figures have been since then larger than the export figures, a discrepancy that must be due to re-exports the quantities of which it is not possible to determine.

The prosperity of the international trade in table grapes during the period of the peaceful economic development of Europe and the United States, which

Development of the International Trade in Table Grapes in XXth century
(in 100 quintals)

IMPORTING COUNTRIES	Averages of the years			
	1901-03	1911-13	1927-29	1930
Belgium	39	77	277	279
Bulgaria	15	2	120	277
France	101	1,158	3,727	2,213
Greece	—	(1) 69	640	730
Italy	2,544	2,211	2,473	4,532
Netherlands	(2) 1	30	535	741
Austria-Hungary	—	29	0	0
Portugal	374	(3) 680	437	338
Rumania	—	—	526	384
Spain	3,752	4,626	4,793	3,852
U. S. S. R.	0	0	70	56
Hungary	—	—	343	1,764
Algeria	375	1,560	516	802
Union of South Africa	—	—	220	251
Cyprus	—	—	172	148
Palestine	—	—	38	37
Turkey	—	—	20	38
Argentina	—	—	330	542
United States	—	—	2,111	2,225
TOTAL . . .	7,201	10,442	17,348	19,209

(1) Including Crete 1911-12. — (2) 1905. — (3) Average 1909-13.

lasted from after the crisis of the years 1870 to 1880 up to the world war without serious interruption, was due to the large increase in the numbers of people who could purchase increasing quantities of foods of a kind that had not previously been regarded as essential. The population was becoming concentrated in the towns and in ever increasing numbers. The new conditions of work and life demanded suitable nourishment of a less heavy kind. In addition the effect of the extension of the export trade was that more scientific transport equipment was introduced with an improved organisation of trade, and in this way the spread between the net cost and the selling price was reduced, which resulted in an increase alike in consumption and production.

The table shows the steady growth of the international trade in table grapes and the predominant position held from the beginning by the Mediterranean countries and in particular by Spain. The very small quantity of 500 quintals exported in the years 1851-53 shows fairly clearly that, even if this export should properly be doubled in view of the Italian and Portuguese exports, regular export of table grapes did not begin till towards 1850. But up to 1860-65 the trade in table grapes taken as a whole was still of small importance. In all it was still only about 10,000 quintals. A remarkable percentage increase is to be noted

Development of the International Trade in Table Grapes in XXth century
(in 100 quintals)

EXPORTING COUNTRIES	Averages of the years			
	1901-03	1911-13	1927-29	1930
Belgium	3	5	63	56
Denmark	9	56	101	97
Germany	1,829	3,644	6,276	7,009
Finland	0	0	84	78
France	503	894	618	1,671
Great Britain	2,831	2,671	3,911	3,386
Irish Free State	0	0	89	77
Latvia	0	0	4	6
Netherlands	—	30	39	13
Norway	—	86	153	170
Austria	—	(1) 101	796	1,255
Poland	—	—	150	704
Rumania	—	(2) 158	—	—
Russia	—	154	0	0
Sweden	—	36	143	185
Switzerland	197	454	970	1,287
Serbia	178	510	0	0
Czechoslovakia	—	—	223	311
Egypt	—	777	1,080	1,027
Palestine	—	—	(3) 18	32
Philippine Islands	—	—	85	—
Argentina	—	37	229	7
Brazil	—	198	269	225
Canada	48	247	1,269	1,426
Cuba	—	—	237	—
Uruguay	—	16	(4) 9	—
United States	—	1,671	134	252
New Zealand	—	—	57	41
TOTAL . . .	5,598	11,725	17,016	19,315

(1) Including Hungary. — (2) Average 1911-12. — (3) 1927. — (4) Average 1927-28.

during the ten succeeding years; towards 1871-73 the quantity of table grapes reaching international trade amounted to 65,000 quintals. The increase in volume in the most recent decades is even more remarkable. From 1871-73 to 1911-13 there was a rapid acceleration of this trade; in the first two decades the average was 175,000 quintals and in the two following it exceeded 300,000 quintals. For the years 1911-13 the average quantities in movement were nearly one million quintals.

Up to 1901-1903 the expansion of the exports must be ascribed exclusively to the intensification of the activity of Spain, Italy and Portugal. Since the beginning of the XXth century, the proportion of the exports from France and Algeria has constantly increased. There are certain special reasons for the late appearance of France on the market of table grapes. It is well known that

French viticulture had been seriously affected by plant diseases introduced between 1870 and 1880 to such an extent that in the following years France was obliged to import from Greece large quantities of Corinth grapes to supplement the home production of wine grapes. The reconstruction of the vineyards during those years naturally put a stop to all export of table grapes, but led eventually to a greatly increased production, when the new vine plants came into bearing. It was then that a rapid increase in the export of table grapes from France began. The further increase of exports from 1901-903 to 1911-13 was in part due to the export from other countries, with the exception of Italy the exports from which were already declining.

Up to the end of last century the larger proportion of the table grapes entering the world trade went to Great Britain. It is not however possible to make any exact statistical calculation in regard to this proportion, as in the British trade statistics comparable figures for import of table grapes appear only for certain years, so that an approximate estimate only can be made. If, for example, in the years 1891-93 Germany imported 35,000 quintals of these grapes, France 40,200 quintals. Switzerland 8,200 quintals, and if in addition the United States and some small countries took a certain proportion of the total export, which amounted to 406,400 quintals, the share of Great Britain must have been from 60 to 75 % of the international trade in table grapes. In the following ten years, 1891-93 to 1901-903, it was especially the imports directed to Great Britain which developed while those directed to France could no longer noticeably increase on account of the reconstruction as indicated of the French production of grapes. The Swiss demand is of small importance only in the total world trade, although it more than doubled during these ten years. During the years 1901-903 Great Britain absorbed 39 % of the world trade, and Germany nearly 25 %. During the previous decade the imports into Germany had thus considerably increased, and with the new century this development became even more marked. Before the war, Germany ranked first among the importing areas with an annual import of more than 260,000 quintals. During the same period, the imports directed to Great Britain showed no further increase. On the contrary a decline was already apparent from nearly 390,000 quintals to about 290,000 quintals. The British markets could clearly absorb no more grapes and preferred other tropical or subtropical fruits, more particularly bananas, the imports of which during the first decade of the XXth century rose to an extraordinary degree. On the continental markets, on the other hand, the banana did not gain ground appreciably and accordingly could not oust the table grapes. Up to this time the Spanish exporters had almost exclusively consigned their produce to England, but now that marketing of grapes in England was becoming more difficult, they were compelled to find other markets. They were especially successful in the United States, but in Europe also they effected much owing to the high quality of their wares. In this way the Italian exports suffered, and, as has been already said, entered upon a period of decline.

Prof. Dr. KURT RITTER and Dr. MARTIN GUTTFELD

(to be continued)

CO-OPERATION

Co-operation in Mexico.

A short article was published in No. 4 (April, 1932) of this *Bulletin* on " Agricultural Co-operative Organisation in the United States of Mexico ". In accordance with further information received from the Department of Agriculture of Mexico the following explanatory notes are added :

(a) the Law of 21 January 1931 really only modified co-operative credit by amending the law which had established the National Bank of Agricultural Credit ;

(b) the activities which may be undertaken, in accordance with the law, by the co-operative societies, are to be understood as referring to the activities of the organisations authorised under the general law on co-operative societies ;

(c) the list showing the number of co-operative societies organised and their distribution over the territory of the Republic refers only to the co-operative societies formed under the Department of Agriculture and includes only a part of the whole number of societies which have been organised in virtue of the General Law on Co-operative Societies, grouped in other Federal Organisations such as the National Agrarian Commission, the Forestry Department of Hunting and Fishing, the Secretariat of Industry, Trade and Labour, and the National Bank of Agricultural Credit.

(d) at the present time, a Committee appointed by the State is enquiring into a new proposal for a General Law of Co-operative Societies intended to replace that of February 1927.

M. B.

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(1) Previous list June 1932. To be continued December 1932.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); étr. (foreign price); hebd. (weekly); i t. (home price); irr. (irregular); mens. (monthly); N. S. (new series); q. (daily); sem. (half yearly); s. (series); v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

AGRICULTURAL STATISTICS

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Lithuania, Poland, Sweden and Switzerland: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

CEREALS

Wheat. — The estimates available of wheat production this year now cover nearly all the producing countries of the northern hemisphere, except for the U. S. S. R. and China. The total production of the other few countries for which data are still lacking has, in recent years, been only about 35-40 million centals (60-65 million bushels).

As regards Europe, according the new estimates and the rectifications of previous figures received after the publication of the August Report, the results exceed the forecasts made last month. The total production of this continent is the largest recorded since the war, exceeding even the record figure of 1929.

Yields have been high in all the European countries except the exporting countries of eastern Europe; nearly everywhere they have been larger and in many cases considerably larger, than those of 1931 and the average of the preceding five years. In the four most important producing countries, which normally together furnish over half of the total European production, the results have been as follows:

Wheat yields per acre.

	1932		1931		Average 1926-1930	
	centals	bushels	centals	bushels	centals	bushels
Germany	19.8	33.0	17.4	29.0	17.8	29.6
Spain	9.7	16.2	7.1	11.9	7.9	13.2
France	15.0	25.0	12.3	20.5	12.5	20.8
Italy	13.1	21.9	12.3	20.5	11.1	18.4

The harvest, moreover, in most of the European countries other than those of eastern Europe, has been effected on areas larger than those of last year or the preceding quinquennium, the respective increases for this group of countries being about 1,200,000 and 3,000,000 acres.

Thanks to the high yield and also to a smaller extent, to the increase in area, the total European production, excluding the exporting countries of the

East, has reached a record. According to the information available it exceeds the figure for 1931 by nearly 130 million centals (220 million bushels) and the average of 1926-1930 by about 145 millions (240 millions). In the case of Germany, Spain, Estonia, Finland, Italy, the Netherlands, Portugal, Sweden and Czechoslovakia, production in 1932 has no precedent; for other countries such as Austria, Belgium and France it very nearly approaches the maxima attained in the last twenty years.

An altogether different situation exists in the exporting countries of eastern Europe (Bulgaria, Hungary, Poland, Rumania and Yugoslavia), where the yields have in general been very low, due particularly to the damage caused by rust, and area has also, on the whole, been reduced. The total area for the five countries has decreased by about 2,100,000 acres compared with 1931. The yields are as follows:—

Wheat yields per acre.

	1932		1931		Average 1926-1930	
	centals	bushels	centals	bushels	centals	bushels
Bulgaria.	11.2	18.6	12.4	20.7	9.5	15.9
Hungary.	9.0	15.0	10.9	18.1	12.5	20.8
Poland	7.9	13.2	11.2	18.6	11.1	18.4
Rumania	6.2	10.4	9.5	15.8	8.7	14.6
Yugoslavia	7.4	12.3	11.0	18.3	10.0	16.7

In conclusion, the production of the five countries mentioned above is smaller by about 90 million centals (150 million bushels) compared with 1931 and by 45 millions (75 millions) compared with the average of the preceding five years.

The excellent results obtained in the remainder of Europe give however, an increase for the whole of the continent of nearly 42 million centals (70 million bushels) compared with last year and about 100 million centals (160 million bushels) compared with the average.

As regards North America, owing to the estimate recently furnished by Canada, which exceeds the preliminary forecasts based on area and crop condition on August 1, the total figure of production for the continent now approaches that of last year, although still remaining 16 million centals (26 million bushels) below it. But compared with the average for the preceding five years, there is a negative difference of about 70 million centals (117 million bushels).

For Asia and Africa the data available do not show any important changes in comparison with those published last month and the total for this group also shows little change compared with 1931 and the average.

The total production of the northern hemisphere — excluding the crops of the U. S. S. R. and China — exceeds by about 20 millions centals (33 million bushels) that of last year, and is about 30 million centals (50 million bushels) above the average of 1926 to 1930.

Production of Wheat.

COUNTRIES	1932	1931	1930	1929	1928	1927	1926	1925
(Million centals)								
Europe (23 countries)	893	851	809	860	833	754	721	833
North America (3 countries)	714	730	778	675	895	822	750	648
Asia (4 countries)	234	240	269	225	203	234	227	229
Africa (4 countries)	42	42	37	46	44	40	37	44
TOTALS . . .	1,883	1,863	1,893	1,806	1,975	1,850	1,735	1,754
(Million bushels)								
Europe (23 countries)	1,488	1,418	1,348	1,433	1,389	1,257	1,201	1,389
North America (3 countries)	1,190	1,216	1,497	1,124	1,492	1,371	1,249	1,080
Asia (4 countries)	389	400	448	375	338	389	378	382
Africa (4 countries)	70	70	62	77	73	66	62	73
TOTALS . . .	3,137	3,104	3,155	3,009	3,292	3,083	2,890	2,924

For the U. S. S. R., no official information on crop results is available; in general, it is considered that the quantities of wheat which could be exported from the country this year, will be smaller than those exported during last season.

For China, the information available indicates a poor production.

Lastly, as regards the crops of the southern hemisphere, in Australia prospects for wheat production on an area much larger than that of last year, are favourable; in Argentina, where there has also been an extension of the wheat area (11.3 % more than last year), crop condition is on the whole average although in some important producing areas (the northern area of Santa Fé and Entre Rios), damage by locusts is reported.

Rye. — For rye, the data available cover the whole of the production of the northern hemisphere except those of the U. S. S. R. and a small number of countries of minor importance, the total production of which varies round about 35 million centals (60 million bushels).

Production of Rye.

COUNTRIES	1932	1931	1930	1929	1928	1927	1926	1925
(Million centals)								
Europe (19 countries)	492	408	483	492	474	421	397	494
North America (2 countries)	31	22	37	26	29	37	24	29
TOTALS . . .	523	430	520	518	503	458	421	523
(Million bushels)								
Europe (19 countries)	878	728	862	878	846	752	709	882
North America (2 countries)	55	39	67	47	51	67	43	51
TOTALS . . .	933	767	929	925	897	819	752	933

Crop results are, on the whole, satisfactory; the total exceeds by about 93 million centals (166 million bushels) the figure for 1931, which was a year of poor production, approaches the crops obtained during the most favourable years and exceeds the average of 1926-1930 by nearly 40 million centals (70 million bushels).

Barley. — For this product, the data available cover about 85 % of the total production of the northern hemisphere, excluding the U. S. S. R.

The European production is satisfactory and considerably larger than the total crop of 1931 and the average; it constitutes a record for the post-war period except 1929.

In North America, this year's crop greatly exceeds the extremely low one of last year and, owing to the increased acreage under this crop in the United States, is also a little above the average. On the contrary, the known productions of Asia and Africa do not completely reach the level of 1931 and the preceding quinquennium.

Production of Barley.

COUNTRIES	1932	1931	1930	1929	1928	1927	1926	1925
	(Million centals)							
Europe (21 countries)	317	276	306	331	295	262	271	267
North America (2 countries)	187	128	212	183	225	163	126	134
Asia (3 countries)	60	64	64	68	62	64	64	66
Africa (4 countries)	40	46	40	49	49	37	33	49
TOTALS	604	514	622	631	631	526	494	516
	(Million bushels)							
Europe (21 countries)	661	574	638	689	615	547	565	556
North America (2 countries)	390	266	441	381	468	340	262	280
Asia (3 countries)	124	133	133	142	129	133	133	138
Africa (4 countries)	83	96	83	101	101	78	69	101
TOTALS	1,258	1,069	1,295	1,313	1,313	1,098	1,029	1,075

Summarising, according to the data at present available, the results obtained this year show an increase of about 90 million centals (190 million bushels) compared with the very poor crop of 1931 and of about 23 millions (50 millions) on the average.

Oats. — The estimates available cover a group of countries which in general furnish about 85 % of the total production of the northern hemisphere (excluding that of the U. S. S. R.).

On the basis of these estimates, it may be considered that the European crop exceeds the deficient one of 1931 and nearly reaches the average production of the period 1926-30; in North America, the total figure considerably exceeds the extremely poor result of last year and is also above the average.

Uniting these figures, the total production in 1932 shows an increase of nearly 104 million centals (324 million bushels) on 1931 and of nearly 20 million centals (64 million bushels) on the average of the preceding five years.

Production of Oats.

COUNTRIES	1932	1931	1930	1929	1928	1927	1926	1925
	(Million centsals)							
Europe (20 countries)	406	377	384	463	423	384	401	373
North America (2 countries)	542	467	553	454	575	498	496	589
Asia and Africa (4 countries)	4	4	7	7	7	4	4	7
TOTALS . . .	952	848	944	924	1,005	886	901	969
	(Million bushels)							
Europe (20 countries)	1,268	1,178	1,199	1,447	1,323	1,199	1,254	1,164
North America (2 countries)	1,695	1,461	1,729	1,419	1,798	1,557	1,550	1,839
Asia and Africa (4 countries)	14	14	21	21	21	14	14	21
TOTALS . . .	2,977	2,653	2,949	2,887	3,142	2,770	2,818	3,024

* * *

Germany : As a result of generally hot, dry weather in August the cutting of cereal crops was accelerated. In the districts not favoured by the weather, the crops were still standing at the beginning of September.

(Production of spelt (including that mixed with wheat and rye) amounts to 3,693,000 centsals against 2,941,000 last year and 3,200,000, the average for 1926-1930 ; percentages : 125.6 and 115.4.

The area sown to buckwheat is 29,100 acres compared with 30,100 last year and 42,200, the average for 1927-1930 ; percentages : 96.7 and 69.0. That sown to mixed grain is 906,000 acres compared with 894,000 last year and 884,000, the average for the five years 1926-1930 ; percentages 101.3 and 102.4.

Austria : In the first week of August temperature fell and there was an average quantity of precipitation. In a few districts some hail fell also and there was some snow in the mountains. After the middle of the month the weather became fairly hot. In the last few days of the month, frequent storms occurred, accompanied by a fall in temperature. In many regions and especially south of the main Alpine range, moisture is needed. In August, the weather favoured harvesting and threshing of cereals in the higher regions.

The quantities of all kinds of cereals produced, as may be seen from the general table, are very satisfactory. The quality of the grain may be said to be generally very satisfactory. Except for oats, the quantity of cereal straw obtained is excellent. Spring barley straw especially is this year very soft and suitable for feeding to livestock.

Belgium : The month of August was characterised by sunny weather and a period of intense heat. Local storms brought beneficial rain. The weather has generally been favourable to agriculture. In many places lodging has made the use of harvesting machinery difficult. The fine weather has permitted carting under very favourable conditions. Threshing has begun ; yields are reported to be above the normal and the grain is of good quality. For wheat, however, yields are not up to previous expectations, especially in the case of crops lodged early in the season.

Denmark : The cereal harvest is finished. Grain production in many districts has not come up to expectations, whereas that of straw is very satisfactory in different

parts of the country. On the basis of the threshing results at present known, a nearly average production may be anticipated.

Wheat production which, at the commencement of harvest was very promising, has not come up to expectations in part of the Islands. Barley grain is rather small in the regions where ripening has taken place too rapidly.

Crop conditions by the Institute's system are as follows:

	1 September 1932	1 August 1932	1 September 1931
Wheat	98	100	—
Rye	98	97	95
Barley	98	97	95
Oats	96	92	96

Spain: The revised figures of production given in the general table especially for wheat, greatly exceed the first estimates. These figures are considered to be practically final although the data for some provinces may yet be subject to some modifications.

Estonia: The winter crop results are satisfactory; the fine weather has favoured harvesting and threshing of wheat. Condition of the spring crops has deteriorated because the July drought checked growth. Yields of these crops, according to the estimates of the agricultural correspondents, will be smaller than last year and below the average of the last ten years.

This year's area of mixed grain is 184,000 acres compared with 181,000 in 1931 and 169,000, the average for 1926-1930; percentages 102.1 and 109.3. Production is forecast at 1,603,000 centals (2,764,000 bushels) against 2,026,000 (3,492,000) and 1,532,000 (2,641,000) respectively; percentages: 79.1 and 104.6.

Irish Free State: The weather during August was ideal for harvesting work and all the cereal crops were cut and saved under excellent conditions. No serious damage was sustained by the crops from the effects of the weather or from pests or disease.

Finland: Production of mixed grain is now estimated at 481,000 centals (829,000 bushels) compared with 288,000 (497,000) in 1931 and 323,000 (557,000), the average for the preceding quinquennium; percentages: 166.7 and 148.8.

France: From August 15 to September 15, the weather was on the whole rather favorable for carting in the few regions where it had not been finished; storms, in some cases violent, following days of great heat have injured wheat in the stooks in some districts but the damage is on the whole slight as most of the soaked grain had time to dry before carting took place; in some areas of the Southwest and Centre only, a large proportion of soaked grain is reported. Threshing is in progress throughout the country; yields are deceptive in places in the Southwest and the central and western area but, with the exception of the South, the hopes of good or very good yields are confirmed nearly everywhere.

The official estimate published in the table is a provisional one made before the first threshing results in most regions were known. Comparison with the first estimates of preceding years made in September-October cannot, therefore, strictly be made. The estimate for this year, however rough, indicates that the crop is one of the best of the post-war period like those of 1925 and 1929; it indicates a record production in the North, exceeding the maximum reached in 1925 by 5.3 million centals (8.8 mil-

Cereals.

COUNTRIES	AREA					PRODUCTION							
	1932	1931	Average	%	1932	1932	1931	Average	1932	1931	Average	%	1932
	1932/33	1931/32	1926/27	1932/33	1932/33	1932/33	1931/32	1926/27	1932/33	1931/32	1926/27	1932/33	1932/33
	1,000 acres					1,000 centals				1,000 bushels			
WHEAT.													
Germany	5,634	5,356	4,181	105.2	134.8	111,750	93,329	74,380	186,247	155,545	123,964	119.7	150.2
Austria	517	517	508	100.0	101.8	7,646	6,605	6,946	12,743	11,009	11,576	115.7	110.1
Belgium	391	381	384	102.4	101.7	9,060	8,291	8,731	15,099	13,817	14,551	109.3	103.8
Bulgaria	2,906	2,964	2,754	98.1	105.5	32,335	36,718	26,200	53,891	61,195	43,666	88.1	123.4
Spain	11,189	11,245	10,786	99.5	103.7	108,426	80,657	85,802	180,707	134,426	143,001	134.4	126.4
Estonia	128	99	74	129.0	173.3	1,147	1,043	707	1,912	1,738	1,178	110.1	162.4
Finland	50	47	40	106.8	126.6	747	696	554	1,246	1,161	923	107.3	134.9
France	13,235	12,840	13,052	103.1	101.4	198,818	158,473	162,547	331,375	264,116	270,906	125.5	122.3
Engl. and Wales .	1,288	1,197	1,460	107.6	88.2	24,461	21,532	28,378	40,768	35,887	47,296	113.6	86.2
*Scotland	52	50	57	104.9	92.7	...	1,075	1,335	...	1,792	2,225	...	...
*N. Ireland . . .	4	3	5	131.2	79.2	...	64	112	...	106	187	...	...
Greece . . . . .	...	1,390	1,300	...	...	11,023	7,323	7,152	18,372	12,205	11,920	150.5	154.1
Hungary	3,897	4,011	3,953	97.2	98.6	35,152	43,531	49,246	58,586	72,550	82,075	80.8	71.4
Italy	12,170	11,870	12,083	102.5	100.7	159,557	146,503	133,831	265,924	244,167	223,048	108.9	119.2
*Latvia	255	215	151	118.8	168.7	...	2,035	1,607	...	3,388	2,679	...	...
Lithuania	514	478	401	107.4	128.1	4,872	4,114	3,135	8,120	6,857	5,222	118.4	155.5
Luxemburg	22	23	30	97.8	75.9	298	244	331	496	407	551	122.0	90.0
Malta	10	10	9	99.2	103.9	181	166	179	301	277	298	108.6	101.0
Netherlands . . .	293	192	137	152.2	212.9	7,981	4,051	3,660	13,301	6,751	6,100	197.0	218.0
Poland	4,206	4,495	3,477	93.6	121.0	33,534	49,935	38,519	55,888	83,220	64,197	67.2	87.1
Portugal . . . .	...	1,271	1,082	...	...	10,883	7,799	6,262	18,138	12,999	10,437	139.5	173.8
Rumania	7,043	8,566	7,625	82.2	92.4	44,093	81,181	66,443	73,486	135,299	110,736	54.3	66.4
Sweden	747	683	544	109.4	137.2	15,499	10,829	10,276	25,830	18,048	17,125	143.1	150.8
Switzerland 1) .	182	179	175	101.5	103.8	3,389	3,294	3,372	5,647	5,489	5,619	102.9	100.5
Czechoslovakia .	2,092	2,060	1,907	101.6	109.7	32,127	24,739	29,466	53,543	41,232	49,109	129.9	109.0
Yugoslavia . . .	5,243	5,395	4,899	97.2	107.0	38,887	59,274	48,794	64,810	98,789	81,322	65.6	79.7
Total Europe . .	§ 74,418	75,269	70,861	98.9	105.0	891,866	850,325	794,909	1,486,430	1,417,184	1,324,820	104.9	112.2
*U. S. S. R. . . (w)	32,337	29,173	20,663	110.8	156.5	...	...	501,596	...	...	835,976	...	...
— (s)	53,603	62,901	54,224	85.2	98.9	...	...	...	...	...	...	...	...
Canada	27,175	26,115	23,926	104.1	113.6	280,290	182,486	261,452	467,150	304,144	435,744	153.6	107.2
United States (w)	33,245	41,363	38,202	80.4	87.0	265,200	473,677	352,524	442,000	789,462	587,541	56.0	75.2
— (s)	22,169	13,936	21,243	159.1	104.4	163,800	62,845	162,919	273,000	104,742	271,532	260.0	100.5
Mexico	1,066	1,501	1,278	71.1	83.4	5,353	9,736	6,724	8,921	16,226	11,207	55.0	79.6
Total North Amer.	83,655	82,915	84,649	100.9	98.8	714,643	728,744	783,619	1,191,071	1,214,574	1,306,024	98.1	91.2
Korea . . . . .	...	...	882	...	...	4,983	5,004	5,422	8,305	8,340	9,037	99.6	91.6
India	33,749	32,189	31,485	104.8	107.2	202,182	208,432	199,203	336,971	347,387	332,005	97.0	101.5
Japan	1,235	1,231	1,185	100.3	104.2	19,520	18,536	17,819	32,533	30,892	29,699	105.3	109.5
Syria and Leban.	1,191	1,168	1,118	102.0	106.5	7,452	8,358	8,383	12,419	13,929	13,971	89.2	88.9
Total Asia . . .	§ 37,040	§ 35,453	34,670	104.5	106.8	234,137	240,330	230,827	390,228	400,548	384,712	97.4	101.4
Algeria	3,695	3,640	3,738	101.5	98.8	19,731	15,390	17,755	32,885	25,649	29,392	128.2	111.1
Eritrea	25	22	23	111.1	109.6	132	18	44	220	29	73	...	...
*Kenya 2)	45	43	67	104.2	66.8	...	174	404	...	290	674	...	...
French Morocco .	2,450	2,477	2,699	98.9	90.8	13,179	17,981	16,553	21,965	29,967	27,588	72.3	79.6
Tunis	2,100	1,977	1,774	106.2	118.4	8,819	8,378	6,905	14,697	13,662	11,508	105.3	127.7
Total Africa . .	8,270	8,116	8,234	101.9	100.4	41,861	41,767	41,257	69,767	69,607	68,761	100.2	101.5
*Argentina	§ 19,250	§ 17,995	20,901	111.3	92.1	...	135,556	150,156	...	225,922	251,255	...	...
*Chili	1,570	1,517	1,635	105.5	96.1	...	12,712	16,597	...	21,187	27,661	...	...
GRAND TOTALS .	§ 203,383	§ 201,753	198,414	100.8	102.5	1,882,507	1,861,166	1,850,612	3,137,496	3,101,913	3,084,317	101.1	101.7
RYE.													
Germany	10,996	10,788	11,616	101.9	94.7	184,819	147,769	165,770	330,034	262,982	296,018	125.5	111.5
Austria	934	934	942	100.0	99.2	13,016	10,601	11,143	23,243	18,931	19,898	122.8	116.8
Belgium	573	553	569	100.6	100.7	11,244	11,470	11,862	20,078	20,483	21,182	98.0	94.8
Bulgaria	598	597	521	100.1	114.7	6,402	6,760	4,716	11,433	12,072	8,422	94.7	135.7
Spain	1,517	1,516	1,658	100.1	91.5	15,523	11,817	12,420	27,719	21,103	22,179	131.4	125.0
Estonia	364	356	351	102.2	103.5	3,747	3,259	3,515	6,691	5,820	6,277	115.0	106.6
Finland	544	554	540	98.2	100.7	7,289	6,604	6,663	13,015	11,792	11,898	110.4	109.4

COUNTRIES	† AREA					‡ PRODUCTION											
	1932	1931	Average 1926 to 1930	% 1932 1931-33		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932 1931-33		
	1932/33	1931/32	1926/27 to 1930/31	1931 — 1932	Aver.	1932/33	1931/32	1926/27 to 1930/31	1932/33	1931/32	1926/27 to 1930/31	1932/33	1931/32	1926/27 to 1930/31	1931 — 1932	Aver.	
	1,000 acres					1,000 centals					1,000 bushels					1931 1932 = 100	
	= 100					= 100					= 100					= 100	
*France	1,781	1,760	1,899	101.2	93.8	...	882	16,530	23,904	...	29,519	49,801	...	86.7	98.2		
Greece . . . . .	...	179	131	...	...	...	1,017	898	1,575	1,816	1,603	...	...	...	...
Hungary	1,574	1,486	1,631	105.9	96.5	17,955	12,136	16,374	32,062	21,672	29,240	147.9	109.7	...	...
Italy	278	284	305	97.9	91.1	3,338	3,375	3,584	5,961	6,027	6,401	98.9	93.1	...	...
*Latvia	393	572	628	103.7	94.5	...	3,144	5,448	...	5,615	9,729	...	...	...	...
Lithuania	1,195	1,257	1,164	95.0	102.7	12,787	9,118	11,307	22,834	16,282	20,192	140.2	113.1	...	...
Luxemburg	17	16	18	108.1	97.1	231	188	219	413	336	391	123.1	105.7	...	...
Netherlands	407	445	485	91.6	84.1	7,650	7,933	8,698	13,660	14,167	15,532	96.4	88.0	...	...
Poland	13,834	14,263	14,078	97.0	98.3	141,343	125,722	137,337	252,399	224,504	245,246	112.4	102.9	...	...
Rumania	791	1,006	779	78.6	101.5	7,275	7,819	7,123	12,992	13,962	12,721	93.0	102.1	...	...
Sweden	514	511	686	100.5	74.9	9,722	6,577	9,925	17,362	11,745	17,723	147.8	98.0	...	...
Switzerland	45	46	49	99.5	92.3	833	785	894	1,488	1,402	1,597	106.2	93.2	...	...
Czechoslovakia	2,585	2,490	2,548	103.8	101.4	42,532	30,593	36,752	75,593	54,631	65,629	138.4	115.2	...	...
Yugoslavia	615	625	557	98.4	110.5	4,527	4,264	4,144	8,084	7,614	7,399	106.2	109.2	...	...
Total Europe	\$) 37,560	37,906	38,628	99.1	97.2	490,915	407,307	453,344	876,636	727,341	809,548	120.5	108.3	...	...
*U. S. S. R.	65,731	68,380	65,481	96.1	100.4	...	...	492,031	...	...	878,629	...	...	...	...
Canada	773	778	955	99.4	80.9	7,126	2,980	8,685	12,725	5,322	15,509	239.1	82.0	...	...
United States	3,324	3,127	3,312	106.3	100.4	23,800	18,208	22,692	42,500	32,514	40,522	130.7	104.9	...	...
Total North Amer.	4,097	3,905	4,267	104.9	96.0	30,926	21,188	31,377	55,225	37,836	56,031	145.9	98.6	...	...
Algeria	5	3	4	161.1	147.3	44	20	28	79	37	49	215.3	159.5	...	...
*French Morocco	2	2	2	94.5	105.3	...	8	11	...	14	19	...	...	...	...
*Argentina	\$) 1,332	\$) 1,378	\$) 1,065	111.2	143.8	...	5,456	3,329	...	9,744	5,945	...	...	...	...
*Chile	7	7	8	104.3	92.1	...	46	71	...	82	127	...	...	...	...
GRAND TOTALS	\$) 41,662	41,814	42,999	99.6	97.1	521,885	428,515	484,749	931,940	765,214	865,628	121.8	107.7	...	...

BARLEY.

Germany	3,875	4,001	3,733	96.8	103.8	71,020	66,540	64,324	147,961	138,627	134,011	106.7	110.4
Austria	416	416	387	100.0	107.5	6,180	4,775	5,531	12,874	9,948	11,523	129.4	111.7
Belgium	89	70	78	126.9	114.2	2,068	1,705	1,862	4,308	3,552	3,879	121.3	111.1
Bulgaria	605	607	591	99.7	102.5	7,022	7,949	6,607	14,629	16,560	13,765	98.3	106.1
Spain	4,837	4,644	4,481	104.2	107.9	58,289	43,548	45,265	121,438	90,727	94,304	133.9	128.8
Estonia	266	279	283	95.4	93.9	2,061	2,840	2,512	4,293	5,918	5,233	72.5	82.0
*Irish Free State	103	116	125	89.0	82.4	...	2,362	2,939	...	4,921	6,122	...	...
Finland	300	276	276	109.1	108.8	3,662	3,086	3,220	7,629	6,450	6,708	118.6	113.7
*France	1,859	1,865	1,721	99.7	108.0	...	22,911	23,904	...	47,732	49,801	...	...
Engl. and Wales	963	1,029	1,104	93.6	87.2	16,822	17,294	20,300	35,047	36,029	42,293	97.3	82.9
*Scotland	70	88	112	79.6	62.6	...	1,658	2,249	...	3,453	4,685	...	...
Greece . . . . .	...	557	472	...	...	5,291	4,391	3,333	11,023	9,147	6,945	120.5	158.7
Hungary	1,165	1,165	1,077	100.0	108.2	16,028	10,496	13,327	35,392	21,867	27,765	152.7	120.3
Italy	535	543	579	98.5	92.4	5,440	5,278	5,257	11,334	10,995	10,553	103.1	103.5
Latvia	457	451	436	101.4	104.8	4,173	2,228	3,462	8,694	8,809	7,213	98.7	120.5
*Lithuania	495	474	499	104.4	99.2	...	5,205	4,796	...	10,845	9,992	...	...
Luxemburg	10	11	9	89.9	114.1	123	128	115	257	266	240	96.7	107.3
Malta	6	7	7	90.3	94.0	129	137	141	269	285	294	94.4	91.8
Netherlands	50	71	71	70.3	70.0	1,301	1,572	1,960	2,710	3,274	4,084	82.8	66.4
Poland	3,142	3,144	2,905	99.9	108.2	33,891	32,534	31,486	70,607	67,781	65,598	104.2	107.6
Rumania	4,547	4,742	4,494	95.9	101.2	39,463	31,182	42,194	82,216	64,964	37,906	126.6	93.5
Sweden	311	311	333	99.9	93.3	5,049	5,143	5,394	10,518	10,716	11,237	98.2	93.6
Switzerland	17	18	16	98.6	107.7	287	271	265	597	565	549	105.7	108.9
Czechoslovakia	1,762	1,781	1,759	98.9	100.2	30,899	23,691	28,505	62,686	49,357	59,382	127.0	105.6
Yugoslavia	1,040	1,117	1,022	93.0	101.7	8,527	8,640	8,383	17,765	18,000	17,464	98.7	101.7
Total Europe	\$) 24,950	25,240	24,113	98.9	103.4	316,915	275,428	293,439	660,247	573,817	611,346	115.1	108.0
*U. S. S. R.	16,329	16,854	18,169	96.9	89.9	...	...	130,089	...	...	271,024	...	...
Canada	3,742	3,768	4,704	99.3	79.6	42,264	32,344	54,795	88,050	67,383	114,158	130.7	77.1
United States	13,895	11,428	11,231	121.6	123.7	145,440	95,129	126,785	303,000	198,185	264,139	152.9	114.7
Total North Amer.	17,637	15,196	15,935	116.0	110.7	187,704	127,473	181,580	391,050	265,568	378,297	147.2	103.4

COUNTRIES	†) AREA					†) PRODUCTION							
	1932	1931	Average	%	1932	1932	1931	Average	1932	1931	Average	%	1932
	—	—	1926	1932	—	—	—	1926	—	—	1926	—	—
	1932/33	1931/32	to 1930	1932/33	1931/32	1932/33	1931/32	to 1930	1932/33	1931/32	to 1930	1931/32	1932/33
	1932/33	1931/32	to 1930/31	1931/32	Aver.	1932/33	1931/32	1926/27	1932/33	1931/32	1926/27	1931/32	Aver.
	1,000 acres					1,000 centals				1,000 bushels			
Korea	2,206	2,191	2,252	100.7	98.0	21,161	20,095	17,617	44,086	41,862	36,702	105.3	120.1
Japan	2,093	2,105	2,265	99.4	92.4	33,653	36,730	38,870	70,113	76,522	80,980	91.6	86.6
Syria and Lebanon	810	941	746	86.0	108.6	5,260	6,812	8,299	10,959	14,193	17,291	77.2	63.4
Total Asia	5,109	5,237	5,263	97.5	97.1	60,074	63,635	64,786	125,158	132,577	134,973	94.4	92.7
Algeria	3,203	3,178	3,505	100.8	91.4	14,110	12,993	16,856	29,396	27,069	35,181	108.6	83.6
Eritrea	86	62	54	140.0	160.6	463	445	144	965	928	299	104.0	322.1
French Morocco	2,930	3,222	2,995	90.9	97.8	17,882	28,335	21,933	37,254	59,032	45,695	63.1	81.5
Tunis	1,483	1,223	1,235	121.2	120.1	7,496	3,968	4,063	15,616	8,268	8,465	188.9	184.5
Total Africa	7,702	7,685	7,789	100.2	98.9	39,951	45,741	43,026	83,231	95,297	89,640	87.3	92.9
*Argentina	3) 1,409	3) 1,439	3) 1,276	97.9	110.4	...	10,620	7,668	...	22,125	15,976	...	...
*Chile	111	106	167	104.8	66.7	...	1,487	2,390	...	3,097	4,980	...	...
GRAND TOTALS	\$) 55,398	53,358	53,100	103.8	104.3	604,644	512,277	582,831	1,259,686	1,067,259	1,214,256	118.0	103.7
OATS.													
Germany	8,115	8,310	8,634	97.7	94.0	147,851	136,795	144,210	462,032	427,482	450,653	108.1	102.5
Austria	777	777	759	100.0	102.4	9,705	7,321	9,645	30,327	22,877	30,141	132.6	100.6
Belgium	714	729	682	98.0	104.7	15,293	15,483	15,044	47,790	48,384	47,013	98.8	101.7
Bulgaria	304	295	335	102.9	90.6	2,712	2,754	2,327	8,474	8,605	7,272	98.5	116.5
Spain	1,926	1,986	1,902	97.0	101.3	17,165	13,335	13,333	53,539	41,670	41,664	128.7	128.7
Estonia	356	367	356	97.2	100.0	2,754	3,615	2,807	8,606	11,296	8,772	76.2	98.1
*Irish Free State	623	623	650	100.0	95.8	...	11,666	14,628	...	36,457	45,713	...	...
Finland	1,119	1,149	1,100	97.4	161.8	13,398	14,684	12,952	41,367	45,886	40,475	91.2	103.4
*France	8,418	8,564	8,584	98.3	98.1	...	101,215	109,233	...	316,293	341,352	...	...
Engl. and Wales	1,577	1,652	1,802	95.5	87.5	27,350	27,774	32,032	85,470	86,793	100,098	98.5	85.4
*Scotland	866	835	893	103.8	96.9	...	13,933	15,373	...	43,540	48,664	...	...
*N. Ireland	285	286	312	98.8	91.5	...	5,065	6,312	...	15,827	19,725	...	...
Greece . . . . .	...	341	279	...	...	2,205	2,073	1,595	6,889	6,477	4,985	106.4	138.2
Hungary	575	596	665	96.5	86.4	6,406	4,278	7,753	20,019	13,368	24,227	149.8	82.6
Italy	1,177	1,206	1,255	97.6	93.8	13,771	13,075	13,112	43,034	40,860	40,974	105.3	105.0
Latvia	802	795	735	100.9	109.1	6,946	7,555	5,646	21,705	23,611	17,644	91.9	123.0
*Lithuania	931	900	828	103.4	112.4	...	8,981	7,311	...	28,065	22,846	...	...
Luxemburg	74	75	72	98.9	102.9	1,058	871	984	3,307	2,721	3,076	121.5	107.5
Netherlands	350	369	378	94.9	92.5	6,393	6,331	7,341	19,979	19,784	22,941	101.0	87.1
Poland	5,367	5,367	5,125	100.0	104.7	52,468	50,915	52,374	163,963	159,109	163,668	103.1	100.2
Rumania	2,100	2,154	2,757	97.5	76.2	16,755	14,776	24,354	52,360	46,175	76,107	113.4	68.8
Sweden	1,589	1,590	1,729	99.9	91.9	24,802	22,326	25,867	77,506	69,767	80,835	111.1	95.9
Switzerland	41	45	50	89.7	81.4	750	739	926	2,342	2,308	2,894	101.5	81.0
Czechoslovakia	2,027	2,042	2,081	99.3	97.4	33,252	26,998	31,115	103,912	84,368	97,235	123.2	106.9
Yugoslavia	848	974	969	87.0	87.5	5,620	5,837	7,283	17,563	18,242	22,759	96.3	77.2
Total Europe	\$) 30,179	30,819	31,665	97.9	95.3	406,654	377,535	410,700	1,270,784	1,179,783	1,283,433	107.7	99.0
*U. S. S. R.	35,149	42,492	43,286	82.7	81.2	...	...	342,579	...	...	1,070,551	...	...
Canada	13,157	12,871	12,971	102.2	101.4	143,660	111,615	134,725	448,937	348,795	421,014	128.7	106.6
United States	41,994	39,719	40,230	105.7	104.4	398,400	355,852	380,694	1,245,000	1,112,037	1,189,662	112.0	104.7
Total North Amer.	55,151	52,590	53,201	104.9	103.7	542,060	467,467	515,419	1,693,937	1,460,832	1,610,676	116.0	105.2
Syria and Lebanon	28	27	42	102.3	66.6	300	182	287	936	570	897	164.3	104.4
Algeria	498	557	605	89.4	82.4	2,601	2,628	4,169	8,130	8,212	13,028	99.0	62.4
French Morocco	63	60	82	106.0	77.2	509	531	637	1,591	1,660	1,992	95.9	79.9
Tunis	86	67	109	129.6	79.3	617	728	780	1,929	2,274	2,429	84.8	79.1
Total Africa	647	684	796	94.9	81.7	3,727	3,887	5,586	11,650	12,146	17,449	95.9	66.
*Argentina	3) 3,509	3) 3,470	3) 3,535	101.1	99.3	...	22,170	19,504	...	69,280	60,949	...	...
*Chile	174	166	203	104.9	86.0	...	1,575	2,171	...	4,923	6,785	...	...
GRAND TOTALS	\$) 86,005	84,120	85,704	102.3	100.4	952,741	849,071	931,992	2,977,307	2,653,331	2,912,455	112.2	102.2

†) The two dates mentioned refer to the years in which the harvest took place in the northern and southern hemispheres respectively. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are possessed but those of area are not yet available. — * Countries not included in the totals. — w) Autumn crops. — s) Spring crops. — 1) Including spelt and meslin. — 2) European crops only. — 3) Area sown. — 4) Barley and meslin.

lion bushels). Production in the East and the Centre is, according to the estimate, about equal to the maximum obtained in the same year, whereas in the West it is a little below the record figure of 1929; for these four regions situated North of the Loire which, in a normal year contribute 7/10 of the total production, the yield this year, with a few smaller or larger variations, exceeds by one third the average for the period 1926-30, which may be considered as normal. In the central-eastern area and the Southwest, the increase is only about 10 %; in the Centre and South, there is a slight deficit.

The specific weight, except in the South, is one of the highest so far recorded, with an average of 60.73 lb. per bushel and regional variations ranging from 57.24 lb. in the South to 61.22 lb. in the Southwest; the North and Centre report an average specific weight of 61.07 lb.

This official estimate is considered generally by commercial authorities to be much too low. The « Bulletin des Halles » gives, as the result of an inquiry, over 231.5 million centals (385.8 million bushels); all regions except the South would have record crops according to this authority; the North, 12.1 million centals (20.2 million bushels) more than in 1925 and 50 % more than the average; the West, 4.4 million centals (7.3 million bushels) more than in 1929 and 46 % over the average; the Centre, 6.6 million centals (11 million bushels) more than in 1925 and 1929 and 72 % over the average. It does not seem that conditions have been so exceptional as to permit such abnormally high yields to be obtained; the official estimate seems to more nearly represent actuality even if it is somewhat lower.

The barley crop appears to be very good although not much threshing has so far been done; that of rye appears to be a good average, and that of oats very irregular but fairly good on the whole.

Stubble ploughing has begun under good conditions but rain was needed by September 10 north of the Loire.

Great Britain and Northern Ireland: In England and Wales the weather during the greater part of August was exceptionally fine and warm over the whole of the country. Excellent progress was made in most districts with the cutting of cereal crops and at the end of the month in the southern and western countries of England a large proportion of the cereals had been stacked in good condition. Except where crops had been laid by storms which occurred during the previous month, the quality of the grain was generally fairly good.

In Scotland the weather has been dry and bright and the grain crops have ripened quickly. Harvesting has proceeded under exceptionally favourable conditions. A small part of the oat crop has been lodged but very little damage caused by disease or insect pests.

In Northern Ireland the weather generally during August was dry and the temperature fairly high. Towards the close of the month however, the weather became unsettled. Crops ripened rapidly during the month and under comparably favourable conditions; harvesting commenced in most districts at about the middle of the month. Winter wheat was practically all harvested at the end of the month and is now in « stooks » or in the stack-yard. Reports on the quality of the produce are generally favourable and the yield promises to be satisfactory. In the case of spring sown wheat, some has been cut but the greater part still remained uncut at the end of the month. The oat crop finished very well in growth, ripened evenly and rapidly and, except in hilly and late districts, considerable headway in harvesting was made. The quality generally is very satisfactory.

Hungary: In the three weeks from August 3 to 24, the temperature, which was at first low, later rose to a very high level. Precipitation was greatly above the average.

At the end of August, threshing was still in progress.

The grain of the rye and barley crop is well developed and of good quality, while that of the oat crop varies greatly according to district.

Italy: During August, threshing was finished nearly everywhere and indicated production above previous forecasts. The autumn work, which was begun in the southern provinces during the first half of the month, continued regularly.

Latvia: The average temperature for the month of August was above the normal, especially in the first three weeks, whereas in the last ten days it was cooler.

Quantity of precipitation was above the normal owing to very heavy showers in the first ten days of the month; in the remaining twenty days, precipitation was much smaller in quantity.

Area this year of mixed crop is estimated at 164,000 acres, an increase of 2.3 % on that of last year (160,000 acres) and an increase of 4.0 % on the average of the five years ending 1930 (158,000 acres).

Production of spring wheat this year is estimated at 746,000 centals (1,244,000 bushels), an increase of 17.9 % on that of last year: 633,000 centals (1,056,000 bushels) and an increase of 93.8 % on the average of the five years ending 1930: 385,000 centals (642,000 bushels).

Lithuania: Conditions have been unfavourable for the harvesting of winter crops; for spring crops, they were average. Continual rain has caused the wheat and a large part of the rye to germinate in the stooks.

Luxemburg: Dry weather in August favoured the carting of cereals, the quality and yield of which are satisfactory.

Norway: During August the weather was warm and dry in the East and South despite some rainfall at the beginning of the month; in the West from Rogaland to Möre it was also warm but changeable with alternate rain and sunshine; in Möre, Trøndelag and the North, the weather was cool, especially in the latter half of the month, with much rain which partly hindered harvesting.

The cutting of cereals, which took place earlier than usual, is in full swing throughout the country and a fairly large proportion of the crop has already been carted. The wheat is well matured; in most districts it is of excellent quality and quantity is also very satisfactory.

Crop conditions by the Institute's system are as follows:—

	End of August 1932	End of July 1932	End of August 1931
Winter wheat	103	101	94
Spring wheat	102	101	89
Winter rye	104	103	90
Spring rye	98	88	90
Barley	106	102	93
Oats	99	98	83
Mixed grain	103	100	89

Poland : The large decrease in wheat production compared with last year is due particularly to rust in the departments of Wolyn, Kielce and the southern area (Cracow, Tarnopol, Lwow, Stanislawow) which together produce about $\frac{1}{3}$ of the total, and to lodging in the departments of Poznan, Pomorze and Nowogródek.

Rye yields, on the contrary, have been poor only in the regions of little importance and production consequently exceeds that of last year by 12 %.

As regards barley and oats, these crops show a slight increase.

Production of straw is expected to be average.

Weather conditions during August were in general favourable for cutting.

Switzerland : The cutting of cereals has been retarded by adverse weather but the crop has been carted under advantageous conditions.

This year's crop seems to be satisfactory as regards quantity and quality despite considerable damage by rust and unfavourable weather.

Yugoslavia : The generally warm, dry weather during August was very favourable for cutting which, in the first few days of September, had been finished almost everywhere.

U. S. S. R. : According to the People's Commissariat for Agriculture, the area under wheat, rye, barley and oats as on September 5 was 165 million acres, showing a considerable decrease compared with 184 at the same date of last year, due partly to delayed cutting (the area of the above-mentioned cereals cut in the present year represents 81.3 % of that sown against 85.6 % last year), but principally to the smaller area sown this year. In fact, the area in the present year is 203 million acres against 220 in 1931 and only slightly exceeds the 1926-30 average (202).

The area cut as on September 5 exceeded $\frac{9}{10}$ in the whole of the southern area of the European part of the Union (North Caucasus, Ukraine, Lower and Middle Volga), the central Black Earth area, White Russia and a few other less important regions.

On September 5, cereals had been threshed from 60 million acres compared with 73 million in the previous year.

Warm, dry weather predominated in August and harvesting of cereals was somewhat hindered by rain in only a few areas.

The winter sowing season of 1932-33 is progressing only slowly. On September 5, 27 million acres had been sown or 27.1 % of that planned compared with 36 million acres at the same date of last year.

Argentina : According to the official report of the Department of Rural Economy and Statistics of the Ministry of Agriculture, on August 24th wheat in the Province of Buenos Aires, except in the South and Southeast, showed excessive growth. In the Province of Santa Fé, the cold of the latter half of August has checked the threatened over-growth of wheat, and in most parts of the province crop condition at the end of August was nearly normal. In the North, however, premature growth was very prevalent, whilst locust damage had also been experienced. Notwithstanding the locust menace, the condition of wheat in the Province of Cordoba was quite promising. In the Province of Entre Rios locusts and weeds have done serious damage to wheat. The Province of San Luis has had more moisture than usual and crops have benefited accordingly. The prospect in that Province was very encouraging. In the Province of Santiago del Estero there has been some locust damage, but in general the wheat outlook was satisfactory. In the territory of La Pampa, crops were in better condition than they had been at this stage of the season for several years

past. Rainfall has been satisfactory and wheat was in flourishing condition. The only drawback was that excessive growth was prevalent in some fields.

The Ministry of Agriculture has taken various steps to check the advance of the locust and to limit the damage by this pest. The National Congress has appropriated the sum of one million pesos to be granted in the form of extraordinary credits for the purpose of combatting the pest.

Canada : According to telegraphic information received from the Canadian Government, harvesting made good progress in the Prairie Provinces in the week ended on August 24. Wheat cutting was practically over in Manitoba and threshing was generally in progress. About 50 % of the Saskatchewan wheat crop had been cut and good progress had been made with coarse grains; threshing had begun but was not general. Crops in central and northern Alberta were maturing rapidly with ideal weather and cutting was expected to be general in the following week. Harvesting was delayed in southern Alberta and southwestern Saskatchewan by rains. Grasshoppers continued to damage vegetation in infested areas and stem sawfly was prevalent. Harvesting in Manitoba, Saskatchewan and the greater part of Alberta was interrupted in the week ended on August 30 by rain and there was a possibility of damage by sprouting in stook and swath if the weather continued wet. Alberta needed two weeks fine weather to mature late crops. In other Provinces, harvesting of wheat was practically completed and good progress was made with other grains.

In the week ended on 7 September harvesting was further interrupted by rain. In northern districts and in West Central Alberta frosts damaged late crops but temperatures were rising. The wet weather caused loss of grade through bleaching but the low temperatures limited sprouting. From 80 % to 85 % of the wheat had been cut and, after the interruption due to the rain, threshing was recommencing. Deliveries averaged one million bushels daily. The percentage of damp and tough wheat was less than last year but was expected to increase with the resumption of threshing. High winds damaged ripe oats in Western Manitoba. Estimates of yields were tending to be lower, especially for coarse grains.

According to a later cable of September 10, grain yields are generally higher than in 1931 in the Maritime Provinces, Quebec and the Prairie Provinces, approximately equal in Ontario and lower in British Columbia.

United States : According to a report on planting intentions issued by the Department of Agriculture on August 26, the acreage of winter wheat to be seeded this fall is indicated at about 39,805,000 acres or 0.9 % less than was seeded in the autumn of 1931 (40,172,000 acres) and 9 % less than the acreage of autumn 1930 (43,526,000 acres). Judging from experience in the last nine years, actual seedings will fall below these indications if dry weather prevails in the great Plains area and may exceed present indications if ample rainfall is received in that area.

The acreage of rye to be seeded this autumn for all purposes is indicated by the intention reports at 4,611,000 acres or 5 % less than in 1931 and 9 % less than in 1930. This is the first estimate made by the Crop Reporting Board of rye seeding for all purposes as previous reports related to rye for grain only; it has become difficult to estimate the proportion of the total to be harvested for grain due to large changes in acreage utilisation. The largest reductions in rye sowings are reported in several of the principal rye States, especially the Dakotas. Increases are shown largely in the States where rye is primarily a pasture or soiling crop. This report is not a forecast of the acreage that will be planted but merely a statement of the acreage indicated by farmers' intentions as of August 5.

In the last week of August the soil continued too dry for ploughing in many areas of the Southwest, in the eastern Ohio Valley and in most of the eastern States from Virginia northward. In the central Mississippi area satisfactory progress was made. Ploughing and seeding advanced in South Dakota but in North Dakota the soil was too dry. Some winter wheat was seeded in north western Kansas but this work was mostly awaiting rain. The weather was largely favourable for threshing the remnants of the small grains although in the Pacific Northwest harvesting and combining were delayed somewhat by wet fields or showers. In the first week of September conditions were scarcely favourable for sowing winter wheat as rainfall was unsatisfactory and on September 15 sowings were reported to be backward.

Crop conditions of cereals on September 1, 1932, August 1, 1932 and September 1, 1931 respectively were as follows: durum wheat: 64.3, 71.7, 37.5; other spring wheat: 67.5, 70.4, 36.5; oats: 75.4, 75.3, 66.7; barley: 70.9, 73.6, 52.4.

Cyprus: The production of wheat, barley and oats varies in the different areas according to the severity of the drought, but it is, on the whole, much below the average. At the end of August the threshing of wheat was completed.

Syria and Lebanon: The data for cereal crops in the Djébel-Druze, which are not given in the table for cereals, are as follows:

	1932	1931	Average 1927-30	1931 = 100	% 1932 Average = 100
	(Area in thousands of acres)				
Wheat	103	105	88	98.4	118.1
Barley	28	28	37	100.7	76.0
	(Production)				
Wheat (ooo centals)	265	274	210	96.6	126.2
(ooo bushels)	441	456	349		
Barley (ooo centals)	60	58	55	101.8	109.1
(ooo bushels)	124	122	114		

Tunis: The weather conditions have been in general favourable for agricultural work. Stubble has been ploughed in large areas of the North.

Union of South Africa: Favourable crop reports continued to be received in July from the Cape Western Province and as a result of economic and weather conditions a greater area has been sown to wheat than is usual. It is evident that little winter grain will be produced outside this province.

Australia: During August the weather was generally very favourable to the wheat crop throughout the country. In Western Australia drier weather is desirable. In South Australia and Victoria, crop condition is excellent. In New South Wales and Western Australia crop conditions are good.

MAIZE

The data received at the Institute up to mid-August indicate that the maize area this year in the principal producing countries varies, in the majority of the cases, with slight deviations, about the five-year average for the period 1926-30. This situation is characteristic of the present maize season, which, in the present

price crisis of agricultural products, has not been affected by any factor tending to increase the area sown to maize; neither did the fall in prices suffice to bring about a larger reduction in the area planted.

As regards the crop condition of maize during the latter half of August in the four principal Danubian producing countries, Rumania, Yugoslavia, Hungary, and Bulgaria and also in Austria, the more or less intense drought contributed to a diminution of the excellent predictions made previously on the basis of the vigorous growth shown during the rather rainy months of June and July. In numerous regions of this group of countries, the growth of the plants was already fairly well advanced when the drought supervened and as the latter was experienced in not excessively large areas, it seems that, for the five countries together, a production slightly above the average may be counted upon. Practically the same weather conditions and a satisfactory growth of the plants up to the end of August were noted also in the three principal Mediterranean countries producing maize: Italy, Spain and France.

Maize.

COUNTRIES	AREA					CROP CONDITION (†)								
	1932	1931	Average 1926 to 1930	% 1932										
				1931 = 100	Aver. = 100	I-IX-1932			I-VIII-1932			I-IX-1931		
						Thousand acres								
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Austria . . . . .	..	152	145	..	..	2.6	—	—	2.2	—	—	2.5	—	—
Bulgaria	1,710	1,676	1,693	102.0	101.0	140	—	—	140	—	—	120	—	—
Spain	1,082	1,053	1,044	102.8	103.7	—	—	—	—	100	—	—	—	—
France	782	855	843	91.5	92.8	—	—	—	—	—	—	—	—	—
Hungary	2,877	2,749	2,677	104.7	107.5	—	—	—	—	—	—	—	—	—
Italy	3,641	3,553	3,740	102.5	97.3	—	—	—	—	—	—	—	—	—
Rumania	11,804	11,749	10,851	100.5	108.8	—	—	—	—	—	—	—	—	—
Switzerland	2	3	3	97.1	75.9	—	—	93	—	—	93	—	—	—
Czechoslovakia	333	347	349	95.9	95.5	—	—	—	—	—	—	—	—	—
U. S. S. R.	9,084	9,741	8,483	93.3	107.1	—	—	—	—	—	—	—	—	—
Canada	125	131	159	95.6	78.8	—	—	93	—	—	90	101	—	—
United States	108,609	105,100	99,449	103.3	109.2	—	—	—	—	—	77.4	—	—	—
Algeria	17	24	24	69.7	68.6	—	—	90	—	—	85	—	—	—
Egypt . . . . .	...	2,194	2,066	...	...	—	100	—	—	100	—	—	100	—
Eritrea	7	22	16	33.3	47.6	e)	—	—	—	—	—	—	—	—
Kenya 1)	165	161	199	102.8	82.9	—	—	—	—	—	—	—	—	—
It. Somaliland	24	53	39	45.1	61.0	—	—	—	—	—	—	—	—	—
Tunis	44	44	41	100.0	108.2	—	100	—	—	100	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 507. —

1) European crops only.

In the United States and Canada, the crop situation was in general satisfactory during August. At the end of the latter month, crop condition was excellent in India.

The statistical data at present available relative to the production of maize, in contrast to those for area, indicate, for the principal producing countries, notable surpluses compared with the corresponding data of the average for the period 1926-1930. This fact indicates how favourably crop forecasts have been

judged. It is very probable that the latest revisions based on both the final phase of growth and the influence of the drought, will bring a reduction: Rumania has reduced its previous production estimate of 134.9 million centals (240.9 million bushels) to 119.7 millions (213.8 millions); Hungary has also changed its forecast of 57.8 millions (103.1 millions) made on August 27, the revised figure of September 17 being 54.3 millions (97.0 millions).

Production of Maize.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1931 = 100	Average = 100
	Thousand centals			Thousand bushels			%	
Bulgaria	18,307	21,983	15,239	32,692	39,256	27,212	83.3	129.1
Spain	14,775	14,778	13,215	26,384	26,389	23,598	100.0	111.8
Hungary	54,335	33,459	35,897	97,028	59,749	64,102	162.4	151.4
Rumania	119,711	133,674	101,569	213,771	238,704	181,374	89.6	117.9
Switzerland	60	67	77	106	114	138	93.1	77.1
Czechoslovakia	5,725	5,020	5,272	10,223	8,965	9,415	114.0	108.6
United States	1,593,240	1,435,432	1,441,334	2,854,000	2,563,271	2,573,817	111.3	110.9
Algeria	141	133	144	252	238	257	106.0	97.9
Eritrea	66	240	97	118	429	174	27.5	67.9
Ital. Somaliland	213	521	417	380	931	745	40.8	51.0
Tunis	143	110	109	256	197	194	130.0	131.6

The revisions to be anticipated for the United States cannot alter the fact that this year's maize crop is notably above the five-year average of 1926-1930. Among the important European producing countries, the crop estimates of Yugoslavia and Italy are not yet to hand. Of the Danubian countries, Hungary announces a record crop.

During the commercial season 1932-33 the United States and Hungary may figure on the world market with larger quantities, an event which has not occurred during the two preceding seasons, which followed two years of poor production.

Argentina, the largest maize exporting country in the world, has just published a new estimate of this year's crop (see below). The quantities still available for export on September 13 are estimated at 38,713,000 centals (69,131,000 bushels). Also, the quantities available for export during the seven and a half months up to May 1 (when Argentine maize appears on the market), reached a monthly average of 5.3 millions (9.4 millions). This figure is considerably below the monthly average of exports of Argentine maize during the period 1925-1929 so that the quantities of maize available for export in the exporting countries of the northern hemisphere may be disposed of with some facility.

V. DE

* * *

Austria: At the end of August the maize crop was growing well in lower Austria and in the north of Burgenland where the cobs are numerous and well developed. In Styria and Southern Burgenland, on the contrary, the crop has suffered greatly from the heat.

Spain : The maize harvest has proceeded regularly ; some damage to the crop has been caused by storms and hail.

France : The maize crop promises to be fairly irregular in different areas due to uneven distribution of rainfall from mid-August to mid-September.

Hungary : At the end of August the maize crop was growing vigorously.

Italy : The maize crop suffered a little from drought in August but resisted well and its aspect is good.

Rumania : In the first half of August there was sufficient precipitation for the maize crop, whereas the second half began with a notable deficiency of moisture throughout the country. More abundant rain did not fall until towards the end of August in Muntenia and some departments of Transylvania.

The maize crop suffered from drought in Bessarabia and in the Siret valley where there is now less prospect of a very abundant crop.

At the end of August, the crop condition of maize was satisfactory in the larger part of the departments of Dobruja, Muntenia and Transylvania.

Yugoslavia : Despite deficient rainfall during August, the aspect of the early maize crop remains good whereas the late crop has suffered from the prolonged drought.

Argentina : The revised estimate of production of 159,505,000 centals (284,831,000 bushels) exceeds by 9,259,000 (16,535,000), that communicated by the Argentine Government on March 31, but is 32.1 % below the record crop of last year and 3.5 % below the average. The quantity of Argentine maize available for export on September 13 was estimated at 38,713,000 centals (69,131,000 bushels).

Ploughing at the end of August was proceeding satisfactorily in anticipation of the new maize planting season.

Canada : Crop condition of fodder maize on September 1 was 94 against 102 on September 1, 1931. According to a cable of September 10 warmth and rain had improved the maize crop.

United States : Crop condition of maize on August 25 was satisfactory in the main maize belt but elsewhere the aspect was unfavourable due to unsatisfactory rainfall. In the last week of August, under the influence of abnormally warm weather the crop, matured rapidly. Showers in the central and western Ohio and central northern Mississippi Valleys were helpful to late maize and progress continued satisfactory and in most places good to excellent except in some northern districts where irreparable damage was done by the July drought.

In the eastern States and in the extreme western belt, the unfavourable dryness continued. In Java the crop had advanced sufficiently for a little to be safe from frost.

In the first half of September the maize crop matured rapidly and at the middle of the month ripening was almost complete.

Mexico : The July rains have improved the maize crop in the principal producing areas. Production is, however, expected to be 25 % below that of last year.

The sowings of "temporal" maize have been effected under good conditions but it is considered that the area sown this year will be smaller than that of 1931.

India : In the latter half of August heavy rains fell in parts of the United Provinces. Standing crops were doing fairly well and prospects were favourable. In Bihar and Orissa the maize crop was affected in parts of Palamau by heavy rain.

Palestine : Harvesting of the maize crop has been completed.

Egypt : Sowing of general and early-sown areas of maize is over. Completion of late-sown areas is in progress. Germination and growth are satisfactory.

Tanganyika : Towards the end of July the harvesting of the maize crop was generally completed and yields were reported to be mainly good, in spite of the fact that the locust invasions led to some crop losses in the coastal area and chiefly in the Arusha District (northern area), where severe damage was caused lately. The pests visited the Dar es Salaam and Rufiji districts but the consequences were not too serious.

Tunis : The complete absence of rain in August was detrimental to the maize and sorghum crops; the not very high temperature at the beginning of September and the absence of sirocco have, however, permitted ripening to take place under good conditions.

Union of South Africa : Definite increases in the production estimates were reported in mid-July practically throughout the Union but especially in the Eastern Transvaal Highveld and the northeast of the Orange Free State. In many districts of the latter yields have been well above expectations and the grain is well filled and of very high quality. These favourable yields can be chiefly ascribed to the absence of serious frosts until very late in the season. Production in Northern Transvaal and Western Transvaal has not, however, been so successful and the figures for these areas generally show a reduction in comparison with those of last year. The quality of the grain in Natal has also been affected by the prevalence of *Diplodia Zeae* caused by the heavy rains at the close of the season. Reports of stalk-borer damage were received from scattered areas but such damage was not material.

A large percentage of the crop was not planted until after the breaking of the prolonged summer drought at the end of January. That maize could be planted in the highveld areas on a large scale so late in the season and still give such excellent yields would previously have been thought impossible.

As no agricultural census will be taken for the 1931-32 crop year a revised estimate based on actual threshing results and a larger number of producers than is possible with the ordinary estimating system will be published later in the season.

RICE

Italy : Crop condition justifies the forecast of a very good production.

United States : In the last week of August the weather was favourable for rice in Louisiana and California; a considerable part of the early crop was cut in the former State.

Production of rice is now estimated at the lower figure of 16,965,000 centals (37,700,000 bushels) compared with 20,352,000 (45,226,000) last year and 19,402,000 (43,115,000), the average for 1926-1930; percentages: 83.4 and 87.4.

British North Borneo : The area planted for the 1931-32 crop is estimated at 68,000 acres as against 62,500 in 1930-31 and 72,000, the average for the previous five-year period. Percentages: 108.8 and 94.3. Production of rough rice in 1930-31, though

higher than in 1929-30, was lower than the average for 1925-26 to 1929-30 (629,000 centals or 1,399,000 bushels, as against 726,000 centals or 1,612,000 bushels). The production figure for 1931-32 is not yet known.

Formosa : The weather was fairly favourable generally to the transplanting of rice of the second crop. The soil has been worked fairly well, and growth has been good.

India : In the latter half of August rainfall in Bengal was light or light to moderate but more was needed for the field operations for winter paddy. At the end of the month reaping of autumn paddy was nearing completion. In the first week of September, the monsoon, which had been weak, strengthened and was active in Burma. In Bihar and Orissa rainfall in the latter half of August was heavy to light and in some areas was insufficient. Rainfall was moderate in Madras and condition at the end of the month was fair.

Japan : Favoured by the weather, the condition of the rice crop on September 1 was rather good.

Korea : Area of rice this year is 4,046,000 acres, a decrease of 1.4 % on that of last year (4,104,000 acres) and an increase of 3.2 % on the average of the five years ending 1930-31 (3,922,000 acres).

British Malaya : During the month of July planting operations proceeded normally in most parts of the Peninsula, but were delayed in Province Wellesley by dry weather throughout the month and in Krian towards the end of the month.

In Selangor the inter-season crop made good growth and gave promise of satisfactory results, while in the areas along the Pahang river the early planted crop also did well on the whole, though in Temerloh District it suffered somewhat from drought.

In the new padi areas of Tanjong Karang and Panchong Pedena in Kuala Selangor district good progress was made in felling jungle and work on the drainage schemes was commenced.

Siam : The area planted up to the end of June 1932 in 28 out of 35 provinces of the Seven Inner Circles was 1,023,000 acres compared with 1,450,000 at the same date of last year. Two provinces had not yet begun cultivation and five had not communicated complete information. The total rice area cultivable in the 35 provinces was 5,116,000 acres; the area planted up to the end of June 1932 therefore represented about 20 % of the total.

The Government of Bangkok has just published the final report on the results of the rice season 1931-32 for the whole Kingdom. A summary of the data is given in the following table :—

	Area planted (000 acres)	Area harvested (000 acres)	Extent of damage % of area planted	Production of padi (000 centals)	Production of padi (000 bushels)
1931-32	7,638	6,378	16.5	90,414	200,915
1930-31	7,858	7,190	8.5	107,253	238,336
1925-26 to 1929-30 . . .	7,139	6,205	13.1	96,625	214,718
 % 1931-32 :					
1930-31 = 100	97.2	88.7	—	84.3	84.3
Average = 100	107.0	102.8	—	93.6	93.6

The average yield for the whole of the country was 14.27 centals (31.70 bushels) per acre harvested representing the lowest yield of the last ten seasons. The yield for the Seven Inner Circles was 14.40 centals (32.00 bushels) per acre harvested. The surplus available for export on August 1, 1932 was estimated at 9,138,000 centals (20,307,000 bushels) of padi which, when added to the 29,390,000 (65,310,000) of padi exported from Bangkok in the period December 1, 1931 to August 1, 1932, gives an exportable surplus for the whole of the season 1931-32 of 38,528,000 centals (85,616,000 bushels) of padi, as compared with the previous estimate of 32,853,000 (73,006,000). The increase over and above the forecast is due to the fact that the yield of the Seven Inner Circles has turned out to be larger than was expected, whereas consumption is smaller than the previous forecast due to the economic depression.

Egypt : Weather conditions were favourable for growth of the *seifi* rice crop. Ears are developing in the early-sown and general cultivations. Weeding is in progress in the late cultivations. Sowing of *nili* rice is nearly over. Germination and growth are satisfactory.

Tanganyika : Towards the end of July harvesting of the rice crop was generally completed, and yields were reported to be good on the whole. Some damage was caused by locust invasions.

POTATOES

As numerical estimates of production of potatoes are at present not to hand for some of the important European producing countries, it is not yet possible to indicate total production this year.

In Poland, the second European producing country in order of importance (excluding the U. S. S. R.), production, while remaining 1.4 % smaller than the heavy crop of last year, is good and 10.3 % above the five-year average.

In Germany, the crop situation at the beginning of September was favourable, thanks to rainfall at the end of August, which removed the anxieties which the prolonged drought had begun to arouse.

In France a serious diffusion of mildew and doryphora and lack of rain in some regions are reported.

In Great Britain and Ireland a good crop exceeding the five-year average is announced.

In the Irish Free State, the Baltic countries and Rumania, yields are anticipated to be good.

The Netherlands, which is essentially an exporting country, reports a crop exceeding the poor one of 1931 by 21.3 %.

The Hungarian crop also exceeds that of last year by 31.7 % and the average by 1.9 %.

In the other less important producing countries the situation does not appear to be bad, although in certain regions drought has persisted.

In North America, in both the United States and Canada, the crop is less good than last year but this continent contributes only an unimportant part to the total world production.

Production of Potatoes.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1931 = 100	Average = 100
	Thousand centals			Thousand bushels			%	%
Germany w)	61,789	65,196	61,299	102,980	108,658	102,163	94.8	100.8
Belgium	77,704	78,857	74,142	129,503	131,425	123,567	98.5	104.8
Bulgaria	1,819	1,720	946	3,031	2,866	1,576	105.8	192.4
Estonia	14,902	18,839	16,688	24,836	31,398	27,813	79.1	89.3
Finland	23,175	15,997	17,419	38,624	26,661	29,030	144.9	133.0
Hungary	42,040	31,912	41,269	70,065	53,185	68,781	131.7	101.9
Latvia	25,373	25,729	18,645	42,288	42,880	31,075	98.6	136.1
Luxemburg	4,233	4,700	3,652	7,055	7,832	6,086	90.1	115.9
Malta	564	670	636	941	1,117	1,060	84.2	88.7
Netherlands	73,194	60,322	72,753	121,987	100,535	121,253	121.3	100.6
Poland	673,522	683,179	610,520	1,122,514	1,138,609	1,017,513	98.6	110.3
Sweden	37,942	33,020	36,508	63,235	55,033	60,846	114.9	103.9
Switzerland	14,813	16,898	14,971	24,688	28,164	24,952	87.7	98.9
United States.	214,200	225,311	213,920	357,000	375,518	356,526	95.1	100.1
Algeria w)	1,102	723	874	1,837	1,205	1,457	152.5	126.1
Eritrea	7	7	3	11	11	5	100.0	205.5

w) Early varieties.

Summarising, it may be said that, according to the information available at the moment, there is reason to believe that production in the year 1932 will be slightly above the average.

V. B.

* * *

Austria : At the end of August the crop condition of potatoes varied greatly from one region to another. Lack of moisture was generally felt. The early varieties are giving very variable yields of tubers of average or small size ; in many cases it is feared they will not keep well. In the middle mountain areas the tubers are generally of better aspect. The foliage of late varieties is withering rapidly in the valleys whereas it is still luxurious in more elevated regions.

Belgium : The growth of potatoes is vigorous and the crop is judged to be good to very good.

Estonia : The weather has favoured the growth of potatoes in the northern areas which are the most important for this crop; it has been less favourable in the South.

Irish Free State : The weather during August was almost continuously dry and warm with an unusually high degree of bright sunshine. These conditions were broken only for a short period in the third week by the occurrence of a thunder storm of exceptional severity accompanied by heavy rains. The crops suffered no serious injury from weather or from pests or disease.

France : The situation as regards the potato crop remains satisfactory subject to possible damage by doryphora, despite a severe attack of mildew in the Southwest and the fact that the plants suffered a little from lack of moisture in some areas, the rain having been irregularly distributed in the period August 15 to September 15.

Great Britain and Northern Ireland : In England and Wales the weather during the greater part of August was exceptionally fine and warm. Main crop potatoes

improved and are generally satisfactory. Disease has been reported but is not prevalent. The yield per acre is forecast at nearly 6 ½ tons or about equal to the ten year average.

Potatoes.

COUNTRIES	AREA					CROP CONDITION (†)									
	1932	1931	Average 1926 to 1930	% 1932		I-IX-1932			I-VIII-1932			I-IX-1931			
				1931 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)	
															1,000 acres
Germany. . . { ⁿ {s)	624 6,490	598 6,381	588 6,390	104.5 101.7	106.3 101.6	— 2.6	— —	— —	2.8 2.6	— —	— —	— —	2.7 2.6	— —	— —
*Austria . . . { ⁿ {s)	435 37	425 32	410 28	102.4 115.4	106.3 134.3	— 150	— —	— —	— —	— —	— —	— —	— 150	— —	— 90
*Denmark . . .	157	169	166	98.8	99.9	—	—	98	—	—	96	—	—	—	—
Estonia . . .	166	168	166	98.8	99.9	—	—	94	—	—	89	—	—	—	—
Irish Free State . . .	348	346	363	100.6	96.0	—	—	—	—	—	—	—	—	—	—
Finland . . .	192	174	173	116.5	111.1	118	—	—	104	—	—	—	61	—	98
France . . .	3,442	3,533	3,589	97.4	95.9	—	—	—	—	—	—	—	—	—	—
England and Wales . . .	504	447	489	112.7	103.0	—	—	—	—	—	—	—	—	—	—
Scotland . . .	146	128	140	114.0	104.1	110	—	—	110	—	—	—	—	—	95
Northern Ireland . . .	142	134	150	105.6	94.5	—	—	—	—	—	—	—	—	—	—
Hungary . . .	729	710	663	102.8	110.0	—	—	—	2.5	—	—	—	—	—	—
Italy . . .	1,018	1,015	870	100.3	117.0	—	—	—	—	—	—	—	—	—	—
Latvia . . .	253	247	207	102.4	122.0	—	—	—	—	—	—	—	—	—	—
Lithuania . . .	427	409	347	104.4	123.0	117	—	—	120	—	—	—	126	—	—
Luxemburg . . .	40	41	40	96.0	99.0	2.3	—	—	2.1	—	—	—	2.4	—	—
Malta . . .	7	7	7	108.1	100.3	—	—	—	—	—	—	—	—	—	—
*Norway . . .	116	120	120	107.1	101.5	104	—	—	103	—	—	—	—	—	95
Netherlands . . .	434	406	428	107.1	101.5	108	—	—	70	—	—	—	—	—	62
Poland . . .	5,233	6,716	6,250	77.9	83.7	—	—	—	—	—	—	—	3.7	—	—
Sweden . . .	327	327	354	100.0	92.3	114	—	—	—	—	—	—	—	100	—
Switzerland . . .	115	113	119	102.0	97.0	—	—	—	89	—	—	89	—	—	96
Czechoslovakia . . .	1,811	1,778	1,772	101.9	102.2	—	—	—	2.4	—	—	—	—	—	—
Total Europe . . .	22,920	24,135	23,543	95.0	97.4	—	—	—	—	—	—	—	—	—	—
U. S. S. R. . . .	2) 13,732	15,104	13,671	—	—	—	—	—	—	—	—	—	—	—	—
Canada . . .	544	584	562	93.1	96.8	—	—	91	—	—	95	—	—	—	92
United States . . .	3,411	3,371	3,097	101.2	110.1	—	—	—	—	—	76.6	—	—	—	—
Algeria . . . { ⁿ {s)	31 23	29 24	30 25	107.3 96.7	101.3 92.7	— 100	— —	— —	— 100	— —	— —	— —	— —	— —	— —
Grand total. . .	40,661	43,247	40,928	94.0	99.4	—	—	—	—	—	—	—	—	—	—

*) Countries not included in the totals. — (†) For the explanation of signs and figures indicating crop condition, see cereals table and note on page 579 — w) Early potatoes. — s) Late potatoes. — 1) Middle of preceding month. — 2) Area sown on 20th June 1932.

In Scotland crops were somewhat affected by the dry conditions that prevailed during most of August but benefited by showers in the last few days. Little or no damage was caused by disease or pests. Crop condition at the beginning of September was excellent (110).

In Northern Ireland, the lifting of early potatoes was practically completed at the end of August and excellent crops were raised. The main crop continued to grow well, for the blight, although prevalent on potatoes in most districts during recent weeks, has caused comparatively little damage this season.

Hungary: At the end of August the potato crop was generally growing well. In some areas disease has brought about a reduction of crop forecasts; for the whole of the country the forecast is, nevertheless, above the average.

Italy: Lifting of potatoes was in progress in August.

Latvia : The crop condition of potatoes was considered as excellent by 8.0 % of the total number of agricultural correspondents, as good by 51.9 %, as average by 34.0 %, as below the average by 4.4 % and as bad by 1.7 %.

Lithuania : Early potatoes have suffered from excessive moisture. In places potato blight is reported.

Norway : Although, in some parts of the country, attacks of disease are reported and drought has caused some damage in important potato growing districts, production prospects on the whole appear to be good. It will not be possible, however, to forecast results exactly until harvest begins.

Poland : The forecasts of rather poor crops in the principal regions are partly counterbalanced by the better forecasts of yields in other regions ; consequently the decrease in production of potatoes compared with last year is estimated at only 1.5 %.

Rumania : Crop condition of potatoes was good at the end of August. A normal crop was forecast.

Switzerland : The condition of hoed crops on September 1 remains the same as on August 1, that is, considerably below the normal.

Canada : On August 30 the potato crop in Nova Scotia was only fair and blight was prevalent in New Brunswick.

Mexico : The July rains have improved the potato crop.

Cyprus : The summer crop has been satisfactory and the planting of the winter crop continues.

SUGAR

From the beginning of August until about September 10, the weather conditions were favourable to the sugar beet crop in most of the European beet producing countries. Growth of the beet has rarely been favoured so generally in the large number of producing countries, having often different climatic conditions. From Sweden to the Mediterranean countries, from France to Poland and the Balkan countries, weather conditions, while showing sometimes considerable variations from one region to another, corresponded to the particular needs of the crop in the various countries.

In August it was in general very warm and on some days temperatures were exceptionally high. Rainfall was not always very abundant but was generally sufficient for the regular growth of the bulbs.

Examining only the situation in the most important beet producing countries, it may be remarked that in Germany growth has made good progress thanks to rain and warmth in August, especially in Württemberg, Bavaria and Hesse, where crop condition is much above the normal. Mention should be made not only of the progress made by the bulbs during the first half of September but also of the high sugar content, which generally diminishes when the weight of the bulb exceeds the normal.

1932-33 Campaign. — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1932	1931	1926-1930	1932	1931	1926-1930	1932	1931	1926-1930	1932	1931	1926-1930
	oz.	oz.	oz.	oz.	oz.	oz.	%	%	%	oz.	oz.	oz.
3rd WEEK OF AUGUST.												
Belgium	12.8	16.1	12.0	28.5	23.9	23.3	12.0	13.6	13.5	1.6	2.2	1.6
Netherlands	19.5	15.2	1) 16.0	—	—	—	13.5	14.5	1) 13.9	2.6	2.2	1) 2.3
Poland	9.8	—	2) 10.2	13.5	—	2) 16.1	14.4	—	2) 14.1	1.4	—	2) 1.4
Czechoslovakia	13.7	14.0	3) 11.7	18.0	15.6	3) 14.2	14.9	15.5	3) 14.7	2.1	2.2	3) 1.7
4th WEEK OF AUGUST.												
Germany	13.7	13.4	12.1	18.8	17.1	18.5	15.6	15.2	14.7	2.1	2.0	1.8
France	14.9	14.1	11.5	19.5	20.8	15.6	12.6	14.1	15.5	1.9	2.0	1.8
Czechoslovakia	14.7	15.7	12.9	16.5	15.2	14.0	15.9	15.7	15.2	2.3	2.5	2.0
LAST WEEK OF AUGUST.												
Germany	14.8	—	—	17.4	—	—	15.7	—	—	2.3	—	—
Belgium	17.0	—	4) 16.3	27.5	—	4) 20.0	14.0	—	4) 16.1	2.4	—	4) 2.6
Finland	14.9	12.6	5) 11.5	25.0	23.0	5) 19.9	12.1	12.1	5) 12.1	1.8	1.5	5) 1.4
Czechoslovakia	16.1	16.9	6) 13.6	16.0	15.2	6) 14.9	16.7	16.1	6) 15.3	2.7	2.7	6) 2.1
1st WEEK OF SEPTEMBER.												
Germany	16.2	15.5	14.2	16.6	17.5	18.6	16.1	15.7	15.8	2.5	2.4	2.3
Finland	15.3	14.5	7) 11.4	26.4	24.0	7) 21.1	13.6	13.7	7) 12.4	2.1	2.0	7) 1.4
France	16.2	15.0	5) 14.0	20.2	22.8	5) 17.7	14.4	14.2	5) 17.6	2.3	2.2	5) 2.5
Czechoslovakia	16.8	17.7	14.6	15.7	14.5	13.4	17.3	16.6	16.4	2.9	3.0	2.4
2nd WEEK OF SEPTEMBER.												
Germany	18.1	16.3	15.5	16.4	17.9	18.6	16.6	16.0	16.5	3.0	2.6	2.5
Denmark	18.1	13.1	14.4	15.0	13.4	16.0	14.7	16.0	16.0	2.7	2.1	2.3
Finland	17.8	15.9	1) 14.6	25.6	27.5	1) 24.6	14.7	14.0	1) 13.0	2.6	2.2	1) 1.9
France	17.2	16.9	8) 15.5	16.9	23.3	8) 18.6	15.9	15.6	8) 15.6	2.7	2.6	8) 2.4
Czechoslovakia	17.4	18.8	15.4	12.6	14.2	12.9	17.9	17.1	17.1	3.1	3.2	2.6
3rd WEEK OF SEPTEMBER.												
Finland	20.1	15.8	7) 13.5	27.7	25.2	7) 22.5	15.1	15.9	7) 15.1	3.0	2.5	7) 2.0
France	18.3	17.6	9) 16.9	17.9	21.7	9) 18.3	17.0	16.7	9) 16.6	3.1	2.9	9) 2.7

1) Average 1927 and 1930. — 2) Year 1927. — 3) Average 1926 to 1929. — 4) Year 1929. — 5) Average 1929 and 1930. — 6) Average 1926, 1927 and 1930. — 7) Average 1928 to 1930. — 8) Average 1926, 1927, 1929 and 1930. — 9) Average 1927 to 1930.

In France, the weather in August was more variable and in the first few days of September there were some signs of the effects of drought which, however, according to recent information, is not causing any anxiety thanks to rainfall in the last few days. Analysis of the beet in the third week of September has, as in Germany, given satisfactory results. Thanks to the considerable weight of the bulbs and their high sugar content, the total sugar content per bulb is over 6 % larger than that of last year and 16 % above the average. Some factories will commence work in the last ten days of September.

In Poland, the sugar beet crop, favoured by fine weather, has made up for the arrears already reported in the previous Report.

In Czechoslovakia also, crop condition of the beet improved during August and at the beginning of September, with the result that although the sugar content of the bulbs is slightly smaller than that of last year, which was very high, it considerably exceeds the average content for the last five-year period.

Crop condition of sugar beet in Great Britain and Ireland was favoured by the weather, which was at first very warm and dry and then rainy and cool ; crop conditions in the North are particularly satisfactory.

Production of Sugar-beet.

COUNTRIES	ENGLISH MEASURES			AMERICAN MEASURES			% 1932	
	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	1931 = 100	Average = 100
	Thousand centals			Thousand short tons			%	
Bulgaria	5,291	4,189	6,001	265	209	300	126.3	88.2
Spain	42,175	62,969	38,361	2,109	3,148	1,918	67.0	109.9
Hungary	19,467	21,301	32,654	973	1,065	1,633	91.4	59.6
Italy	45,195	52,263	57,967	2,260	2,613	2,898	86.5	78.0
Netherlands . .	31,967	22,690	45,961	1,598	1,134	2,298	140.9	69.6
Sweden	29,366	19,317	18,577	1,468	966	929	152.0	158.1
Switzerland . .	1,036	1,036	1,056	52	52	53	100.0	98.1
United States . .	164,200	158,060	154,365	8,210	7,903	7,718	103.9	106.4

In Spain the yield of beet is considered to be good. The diminution of the beet crop compared with that of last year is to be attributed to reduction of area.

In Italy the growth of sugar beet has been so vigorous that the bulbs have rapidly exceeded their normal volume. Sugar content has however, relatively diminished ; in fact, the average polarisation of the samples of beet analysed does not even reach 13°, whereas last year at the same date it was over 16°. For this reason, although on March 7 it was agreed by the National Consortium of Producers and the Beet Growers' Association that the quantity of beet to be delivered to the factories should not exceed 40,000,000 centals (2,000,000 short tons), a new agreement has been arrived at owing to the unforeseen increase of production at a lower sugar content. Under this agreement it is arranged that the factories shall accept 15 % more beet than was fixed in the preceding agreement. The agreement affects only the sugar beet producers of northern Italy, who should deliver 35,300,000 centals (1,765,000 short tons) of beet.

In all the other less important European beet producing countries, the weather conditions have been favourable to the crops and satisfactory yields are forecast everywhere.

The information received at the Institute from the U. S. S. R. is, on the contrary, very bad because, owing to the diffusion of disease and weeds and to the small amount of work done in the fields, a considerable part of the beet

area has been abandoned with the result that the first figure for 1932, which indicated an area 19 % larger than that of 1931, is now reduced to a figure 8 % smaller than that of 1931.

In the United States production in the present season is forecast to be 4 % above that of last year and in Canada crop condition improved during August.

E. R.

Acreege of Sugar Beet.

COUNTRIES	1932 (*)	1931	Average 1926 to 1930	% 1932		
				1931 = 100	Average = 100	
	acres				%	
Germany 1)	669,621	941,147	1,102,151	71	61	
Austria	107,500	106,000	69,381	101	155	
Belgium	132,000	128,378	154,685	103	85	
Bulgaria	29,650	29,650	46,387	100	64	
Denmark	89,000	74,600	90,659	119	98	
Spain	200,000	277,046	165,519	73	122	
Irish Free State	13,100	5,012	14,246	258	91	
Finland	6,200	4,990	5,281	124	117	
France	617,200	620,886	632,999	99	97	
England and Wales	254,800	233,219	220,258	109	116	
Scotland	750	955	3,692	79	20	
Hungary	112,600	137,536	173,060	82	65	
Italy	207,448	287,385	252,877	72	82	
Latvia	17,000	11,100	5,200	156	333	
Netherlands	99,000	92,609	152,926	107	65	
Poland	321,000	367,200	516,594	87	62	
Rumania	50,000	37,000	157,702	133	31	
Sweden	98,800	87,170	75,428	113	131	
Switzerland	3,500	3,500	3,573	100	97	
Czechoslovakia	360,601	460,871	636,664	78	57	
Turkey	35,062	20,000	20,750	177	169	
Yugoslavia	90,740	91,200	119,440	100	76	
Total Europe a)	3,515,572	4,017,454	4,619,472	88	76	
U. S. S. R.	3,124,000	3,400,700	1,867,749	92	167	
Total Europe b)	6,639,572	7,418,154	6,487,221	90	102	
Canada	47,000	50,647	47,670	93	99	
United States	813,000	760,000	700,818	107	116	
Total America	860,000	811,000	748,488	106	115	
GENERAL TOTALS {	a)	4,375,572	4,828,454	5,367,960	91	82
	b)	7,499,572	8,229,154	7,235,709	91	104

*) Approximate data. — a) Not including the U. S. S. R. — b) Including the U. S. S. R. — 1) Total area including the area of sugar beet not utilized in sugar production. — 2) Average 1929 and 1930.

* * *

Austria : At the end of August sugar beet were in general growing satisfactorily. Dry winds have caused a slight withering of the foliage. The bulbs are developing a little slowly but already have a satisfactory sugar content.

Spain : Attacks of "cercospora" are reported but the damage is not grave and crop condition is on the whole judged to be good.

Lifting of sugar beet has been effected regularly ; storms and hail have caused some not very large damage.

Irish Free State : The weather during August was almost continuously dry and warm with an unusually high degree of bright sunshine. These conditions were broken only for a short period in the third week by a severe thunderstorm and heavy rains. The crops suffered no serious injury from weather or from pests or disease.

France : Despite some violent but localised storms towards mid-August, the beet generally needed moisture towards September 10 ; some rain fell at this period in the North. On the whole, the beet situation remains very satisfactory. The first lifting should begin towards the end of this month.

Sugar-beet.

COUNTRIES	CROP CONDITION (†)								
	1 September 1932			1 August 1932			1 September 1931		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
Germany	2.6	—	—	2.5	—	—	2.6	—	—
Austria	2.5	—	—	2.5	—	—	2.7	—	—
Bulgaria	—	—	95	—	—	95	120	—	—
Denmark	104	—	—	—	100	—	—	—	92
Spain	110	—	—	—	—	—	—	—	—
Scotland	—	100	—	—	100	—	—	—	95
Netherlands 1)	77	—	—	—	—	—	—	—	—
Sweden	123	—	—	—	—	—	—	—	97
Czechoslovakia . . . . .	...	...	...	2.3	—	—	2.6	—	—
Canada	—	—	94	—	—	95	—	—	91

(†) For the explanation of signs and figures indicating crop condition see cereals table and note on page 579. —
1) Middle of preceding month.

Great Britain and Northern Ireland : In England and Wales the weather during the greater part of August was exceptionally fine and warm. Average yields of sugar beet are expected in most areas.

In Scotland crops were somewhat affected by the dry conditions that prevailed during most of August but benefited by showers of rain in the last few days. Little or no damage was caused by disease or pests. Crop condition at the beginning of September was average (100).

Hungary : Up to the last week of August the beet were generally growing well. In some areas moisture was needed.

Italy : A heavy beet crop is in prospect.

Rumania : At the end of August the beet were growing well and promised to yield a normal crop.

U. S. S. R. : Due to delay in weeding and the damage caused by insects, the area abandoned was very large : 910,000 acres in the Ukraine only.

No information is possessed regarding the beet situation in the whole of the country. In the central Black Earth Region, where this crop has a certain importance, production per acre is estimated at 178 centals (8.9 short tons). In the Ukraine, which is the most important area, there is too great a shortage of labour for the harvest to be effected in good time.

Canada : Sugar beet showed no improvement in crop condition during August.

Trinidad : Cutting was prematurely terminated by unfavourable weather. Production of sugar in 1931-32 is estimated at 2,184,000 centals (109,200 short tons) against 2,183,000 (109,100) last year, an increase of 0.1 %, and 1,688,000 (84,400) on the average of the five years ending 1929-30, an increase of 29.4 %. Due to the premature end of cutting there is a large standover for 1933-34.

Formosa : The weather was fairly favourable to the growing condition of the sugar cane planted from last summer to this spring.

India : According to an official report of August 25, weather conditions at the time of planting were generally favourable and the present condition and prospects of the crop, on the whole, were reported to be fairly good. Insufficient rain was reported in some districts of Bihar and Orissa.

The first estimate of area under sugar cane for the season 1932-33 is 2,982,000 acres compared with 2,750,000 in 1931-32 and 2,673,000, the average for 1926-27 to 1930-31; percentage: 108.4 and 111.6

Egypt : Weather conditions were favourable for the growth of sugar cane, which is growing satisfactorily thanks to sufficiency of water. Crop condition as on September 1 was 102, as in August, against 101 on September 1, 1931.

Union of South Africa : Figures of production of cane sugar which were published in last month's bulletin as relating to the years 1932-33 and 1931-32, actually were those for 1931-32 and 1930-31 : production 1931-32 ; 7,200,000 centals (360,000 short tons) ; 1930-31 : 7,860,000 (393,000).

Australia : The falling off in production this year has been mainly in the districts from Bundaberg southward.

Fiji : Production of sugar in the current season is estimated at 2,200,000 centals (110,000 short tons) against 1,523,000 (76,100) last season, an increase of 47 % and 1,966,000 (98,300) on the average of the five seasons ending 1930-31, an increase of 14 %.

VINES

As the weather remained very warm and dry in the latter half of August in most of the viticultural countries of the northern hemisphere, the attack of mildew was everywhere checked ; the intense, dry heat caused some damage to vines in the Mediterranean but the injury was appreciable only in South France, as welcome rain fell elsewhere at the beginning of September ; some violent storms, accompanied in places by hail, have, as at this period in previous years, given rise to serious local damage. Some centres of powdery vine mildew and nests of insects are reported at several points of the European vineyard area, giving some cause for anxiety among proprietors in the regions affected. The vintage will be about a fortnight late nearly everywhere.

The information at present possessed, which permits a rough forecast to be made of production in the northern hemisphere, may be summarised as follows : In North Africa : a very good crop exceeding that of last year ; in France, a very mediocre crop except in the vineyards of the Loire, the East and the central-eastern area ; in Spain and Portugal : barely passable crops about the same as

those of last year; in Italy, on the whole satisfactory forecasts; in central Europe, average forecasts and in southeastern Europe, fairly good or good. Production must therefore be expected to be considerably smaller than that of last year and the average of the preceding quinquennium and should probably not differ greatly from the figure of 3,300 million Imperial gallons (4,000 million American gallons).

Vines.

COUNTRIES	AREA					CROP CONDITION (†)												
	1932	1931	Average 1926 to 1930	% 1932														
				1931 = 100	Aver. = 100	I-IX-1932			I-VIII-1932			I-IX-1931						
1,000 acres																		
						a)	b)	c)	a)	b)	c)	a)	b)	c)				
Germany	205	204	201	100,3	101.6	1)2.8	—	—	2.6	—	—	1)2.3	—	—				
Austria 2). . . . .	....	73	80	....	....	2.3	—	—	1.8	—	—	1.8	—	—	
Bulgaria	222	217	199	102,3	111.7	140	—	—	140	—	—	150	—	—				
Spain 2).	3,526	3,526	3,460	100,0	101.9	—	—	80	—	—	—	—	—	—				
France 2).	3) 3,867	3,829	3,749	101.0	103.2	—	—	—	—	—	—	—	—	—				
Luxemburg	3	3	3	99.0	78.4	—	—	3.3	—	—	3.1	2.9	—	—				
Switzerland . . . . .	....	33	35	....	....	—	—	85	—	—	87	—	—	99	
Czechoslovakia	47	45	42	105.3	111.3	—	—	—	—	—	—	—	—	—				
Syria and Lebanon	127	125	108	101.8	117.7	—	—	—	—	—	—	—	—	—				
Algeria 2).	773	771	595	100.2	127.8	—	—	—	—	100	—	—	—	—				
Tunis 2).	99	87	72	113.5	137.3	120	—	—	120	—	—	—	—	—				

(†) For the explanation of signs and figures indicating crop condition, see Cereals table and note on page 579. — 1) Condition of branches. — 2) Area bearing. — 3) The June estimate has been reduced on the basis of the correction made in the estimate concerning the area bearing in 1931.

The markets were very quiet from August 15 to September 15, despite a recovery in shipments to France. Quotations are in general firm.

* * *

Germany : Following the heat of August the crop has made good progress. The heat caused some very slight damage but checked the diffusion of mildew. Production of must is expected to be satisfactory.

Austria : At the beginning of September early varieties of grapes were at a very advanced stage of maturity. Gathering of table grapes had already made good progress. The number of bunches is in general satisfactory. In the producing regions of lower Austria a heavy hailstorm caused large damage. In southeastern Styria the prolonged drought has retarded the growth of the fruit. The foliage of the vines is in general fresh and healthy.

Spain : Cryptogamic disease, particularly mildew in some important areas, especially in Navarre, Rioja and Catalonia, has reduced production to a quantity much smaller than that anticipated. In the central region, on the contrary, production will be larger than last year. On the whole, the crop will be only a very little smaller than that of 1931 and will correspond to about $\frac{4}{5}$ of the production of a normal year. In fact production of grapes is estimated at 66,937,000 centals against 67,803,000 in 1931 and 80,557,000, the average for 1926-1930.

France : August was on the whole exceptionally warm and dry and the attack of mildew was everywhere checked but the weather conditions have had different effects according to region. In the South, Lower Languedoc, Roussillon, the lower Rhône valley and Provence, they have been rather adverse ; the hot sun injured the fruit just as it was about to turn colour and also the stage of ripening reached varied greatly. The soil, after the heavy July rains and not worked in order not to release the spores of mildew, did not long retain its moisture ; a fairly large quantity of fruit was scorched and, towards the end of the month the vines began to suffer from the drought, especially on the hillsides. Powdery vine mildew and eudemis have also caused some damage. Towards the end of the month, the temperature dropped a little and showers fell in places, but the commencement of the ripening stage was irregular. These conditions have reduced the crop a little and it seems that production in the four large producing departments will not greatly exceed half the normal crop and will not reach the 440 million Imperial gallons (530 million American gallons) previously forecast. The vintage could not begin before September 15 or 20, about a fortnight later than usual. It was feared that heavy rains might fall in this period and cause rotting, favoured by the widespead weeds in a number of vineyards.

In other regions August was very favourable to the vines and encouraged the growth and ripening of the fruit, despite some violent storms in the Southwest, especially in Bordelais, where they caused fairly severe but local damage. In this region — the Garonne valley, Bordelais and as far as Charente — the damage by mildew has at the most left only an average crop, so that on the whole, prospects point to a below average production. In the Loire valley and Burgundy, on the contrary, the situation remains good and in some cases, very good ; mildew has not caused serious damage but powdery vine mildew, eudemis and vine moth are still giving rise to grave anxiety although the great heat has diminished hatching. In Champagne the condition of the vines remains fairly irregular although on the whole rather satisfactory ; towards the end of August an attack of mildew and powdery vine mildew was reported ; damage by eudemis and vine moth are considerable in some vineyards.

The situation is therefore only really good in a region which furnishes one third to one quarter of the total crop ; it is about average in a region producing about one quarter and bad in the remainder of the French vineyards. The figure of 1,100 million Imperial gallons (1,300 million American gallons) given last month for production this year also appears to be a maximum ; it seems that, subject to later modifications, production may be placed at 100-110 million Imperial gallons (120-130 million American gallons).

The favourable conditions in August have improved the quality of the grapes in most vineyards and increased their sugar content.

It may be estimated, assuming a normal family consumption, that there will remain in the hands of the owners at the end of the season, about 200 million Imperial gallons (250 million American gallons) including the stocks compulsorily held, that is, considerably more than the normal quantity.

There was, moreover, in July and August, a recovery of imports of foreign wines and must although the quantities were less than in the previous two years, but this is a characteristic event as the vintage was delayed throughout the country and is also partly due to restrictions on the sale of imported wines. Algerian wine and must are beginning to arrive on the southern markets in fairly large quantities despite the delayed vintage in North Africa : 1,812,000 Imperial gallons (2,914,000 American gallons) in August.

Taxed consumption remains high and considerably above that of recent seasons except 1925-26.

Prices, after rising again in the latter half of August, fell slightly at the beginning of September; the highest level reached during the season seems to have been 125-135 francs per hectolitre of red wine ⁹⁰ at the producer's warehouse, on the markets of Montpellier and Sète. At the present moment quotations are firm but often nominal.

The market was very quiet in the latter half of August and the beginning of September.

Hungary : In the second week of August the weather was favourable for the development of the vines. The early varieties of table grapes are already on the market. The high temperature has prevented the diffusion of grape mildew. Production is generally expected to be average, although poor here and there and good in the department of Baranya where the vineyard area, however, represents of 5.2 % of the total area under the crop in Hungary.

Italy : During the first half of August damage by mildew continued. The grapes are a little late in ripening; gathering of table grapes continues.

Luxemburg : Sunny days in August have been beneficial to the vines.

Rumania : On the basis of crop condition at the beginning of September, wine production is forecast to be fairly good.

Switzerland : The vines have resisted the adverse weather relatively well. In many districts, however, mildew has caused some damage. The vines are in general well laden with fruit. If the weather continues to be favourable, a passable crop may be anticipated.

United States : Production of grapes is estimated at 42,024,000 centals compared with 32,437,000 in 1931 and 48,933,000 on the average for 1926-1930; percentages : 129.6 and 85.9.

Cyprus : The Viticulturist and Wine Expert reports that the high temperature and warm winds towards the end of July had an adverse effect on the vines and considerable damage was caused by "Sunburn". The extent of the damage varies according to the nature of the soil and situation of the vineyard. The crop in the early flowering stage suffered loss through a considerable dropping of the flowers due to excessive drought; this, together with the recent damage by "Sunburn", reduces the estimated crop to below normal average. Showers of rain or a moist atmosphere in the vine areas will have great effect in improving the quality of the grapes before vintage. If the exceptionally dry weather continues, the crop will be poor and will consequently have an adverse effect on the quantity and quality of the wines.

Palestine : The yields of wine-grapes were good. The fruit was free from disease and contained a good percentage of sugar. The quality of table-grapes was fair but the yields were not so high as expected.

Algeria : Sirocco winds in the latter half of August caused some damage to the vines, retarding maturity of the grapes, which are not ripening very regularly; this may diminish the sugar content. The sirocco has also caused some scorching of the grapes and vines; eudemis and "fumagine" spread fairly considerably during August.

Despite these conditions, the first results of the vintage, which began in the last ten days of August, are fairly satisfactory. Production will be a little larger than that of last year.

The commercial season for table grapes has been good, favoured by the lateness of the home crop and the partial inactivity on the French market.

Production this year is estimated at about 370 million Imperial gallons (450 million American gallons), representing an increase of 5 % on that of last year: 355 million Imperial gallons (425 million American gallons) and an increase of 57 % on the average of the five years ending 1930: 240 million Imperial gallons (285 million American gallons).

Tunis : The weather conditions have favoured the growth of the vines. An attack of disease (« rougeot ») has caused some local damage but has not brought about a reduction of the estimate of a record crop made last month. The vintage began in the latter half of August under good conditions.

OLIVES

Spain : Conditions this summer have been unfavourable for olives and in many areas production will be below the forecasts. Crop condition on September 1 by the Institute's system varied from 90 to 100.

Italy : Fruit formation on the olive trees is good.

United States : Crop condition of olives on August 1 was 70 compared with 45 on August 1, 1931.

Palestine : The heat of the third week of July had a disastrous effect on the olives; the berries shrivelled and dropped from the trees in numbers at a time when they are usually considered safe. Rising temperatures occurred during the latter part of August and high atmospheric humidity was prevalent, accompanied by heavy dews. The crop is expected to be very poor.

Algeria : In August, the fruit formed under good conditions. In the latter half of August, however, sirocco winds caused some dropping of fruit.

Tunis : Weather conditions in August favoured the growth of olives.

Production of olive oil this year is forecast at 880,000 centals (11,600,000 American gallons), representing a decrease of 20 % on that of last year: 1,100,000 centals (14,500,000 American gallons) and an increase of 7.5 % on the average of the five years ending 1930: 820,000 centals (10,800,000 American gallons).

COTTON

The second estimate published by the department of Agriculture at Washington of cotton production in the United States, is slightly above the preceding one. This fact has surprised the market, which had expected a much lower figure on the basis of the average of the most important private estimates and on the official weekly reports on weather conditions in the cotton belt.

Crop condition on September 1 was 11.4 % below that of September 1, 1931 but 1.5 % above the average of 1921-1930. On the basis of the crop condition and taking into account the prospective damage by boll-weevil, the Government estimates an average production of 147.8 lb. per acre of lint compared with 149.6 lb. as on August 1. But this reduction in the yield has been completely offset by the fact that the proportion of abandonment is somewhat below the average. The estimate of area as on August 1 was made on the basis of an average coefficient of abandonment for the last ten years of 3.1 %. In this month's estimate the coefficient has been lowered to 1.8 %, resulting in a slight increase of the area to be harvested. During August the crop condition of cotton deteriorated in nearly all of the States and especially in those of the eastern and central parts of the belt. Towards September 15 the weather was dry in nearly the whole of the belt and good progress was made, practically throughout the belt, in both picking and ginning.

Cotton.

COUNTRIES	AREA SOWN					CROP CONDITION †)													
	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932-33															
				1931/32 = 100	Aver. = 100	I-IX-1932			I-VIII-1932			I-IX-1931							
						a)	b)	c)	a)	b)	c)	a)	b)	c)					
Thousand acres																			
Bulgaria	30	13	12	226.5	244.7	150	—	—	150	—	—	125	—	—					
Spain	20	14	22	138.6	88.7	—	100	—	—	—	—	—	—	—					
U. S. S. R.	5,787	5,346	2,480	108.2	233.3	—	—	—	—	—	—	—	—	—					
United States . . .	1) 36,611	2) 40,693	2) 44,690	90.0	81.9	56.6	—	—	—	—	—	65.6	68.0	—					
Mexico	156	319	465	48.8	33.5	—	—	—	—	—	—	—	—	—					
India	13,485	13,938	15,161	96.7	88.9	—	—	—	—	—	—	—	—	—					
Algeria	1	3	14	26.9	6.1	—	—	—	—	—	—	80	—	—					
Egypt	1,135	1,747	1,861	65.0	61.0	—	—	—	—	—	—	—	—	—					
TOTAL	57.225	62.073	64.705	92.2	88.4	—	—	—	—	—	—	—	—	—					

†) For the explanation of signs and figures indicating crop condition, see Cereals table and note on page 579 —
1) Acreage estimate as on 1 September. — 2) Acreage picked.

The market continued to be nervous, but on the whole was healthy and the number of bullish factors continues to preponderate.

Crop news from India is, on the whole, good.

In Egypt, a greatly reduced crop is forecast. The first official estimate of production will be issued on the first Monday of October. Picking is in full swing and is expected to be effected with the utmost care on the indication of the present level of prices and the sound statistical situation of Egyptian cottons.

The market is completely dominated by the fluctuations of American cotton.

Information concerning the U. S. S. R. is lacking.

I. S.

* * *

Spain: The unfavourable weather conditions at the time of germination have made necessary the abandonment of part of the areas sown to cotton.

Production of lint this year is estimated at 18,600 centals (3,900 bales), representing an increase of 17.7 % on that of last year: 15,800 centals (3,300 bales) and a decrease of 9.2 % on the average of the five years ending 1930-31: 20,500 centals (4,300 bales).

United States: In the week ended on August 25 cotton picking started in some parts of the country. In the last week of the month temperatures were generally higher and rainfall less frequent than in recent weeks. While this was somewhat more favourable for cotton, many important producing sections reported a continuation of poor to only fair progress, with considerable complaints of shedding. In the first week of September the weather was unfavourable; in the second week dry weather prevailed; picking was in progress.

According to the official September estimate, production of ginned cotton in the present season is estimated at 54,062,000 centals (11,310,000 bales) compared with 81,719,500 (17,096,000) actually obtained in 1931-32 and 70,904,000 (14,834,000), the average for the five seasons 1926-27 to 1930-31; percentages: 66.2 and 76.2. The August estimate was 54,043,000 (11,306,000).

The quantity of cotton, not including linters, ginned from the 1932-33 crop to the close of business on 15 August was 251,000 running bales (counting round bales as half-bales), against 91,000 in 1931, 573,000 in 1930, 305,000 in 1929, 280,000 in 1928 and 455,000 in 1927. To the close of business on 31 August: 865,000; against 565,000 in 1931; 1,880,000 in 1930; 1,568,000 in 1929; 957,000 in 1928; 1,534,000 in 1927.

Cyprus: Toward the end of August the picking of cotton was well advanced and production was good in some areas, while in others the effects of the drought were severely affecting this crop.

India: In the week ended on August 27 rainfall in Bombay Presidency was slight to good in Karnatak and South Deccan but more was needed for cotton in Central Karnatak. In the following week good rain fell and the agricultural situation was satisfactory in the south of the Deccan and Karnatak except that cotton sowing was delayed by excessive rain. Occasional showers fell in the Central Provinces in the week ended on August 22 followed by a week of sunny weather. General rains fell in the Punjab in the same period and on August 29 condition was average to good. In Madras moderate rains fell and condition was fair.

According to a report of August 25 for all India received from the Department of Commercial Intelligence and Statistics, weather conditions of the cotton crop at sowing time were not quite favourable and the condition of the crop was, on the whole, reported to be fair. A telegram of September 13 from the same source gave the crop condition of cotton as 95 % of the normal.

Egypt: The temperature during August was favourable to the cotton crop and irrigation water was sufficient. Damage by parasites and excessive heat are less than usual. Picking began in Upper-Egypt towards the end of August and in Lower Egypt at the beginning of September, about a week late compared with last year.

Uganda: Conditions generally over a large part of the cotton belt in July were favourable for planting, and the total acreage planted to the end of July amounted to approximately 640,000 acres as against 570,000 acres at the same stage last year (112 %).

A slip has occurred in the previous Report, concerning the 1931-32 cotton production in Uganda. The correct figures are as follows :

	1931-32	1930-31	1925-26 to 1929-30	1930-31 = 100	Average = 100
Area (acres)	866,000	740,000	615,000	117.0	140.7
Production of ginned cotton :					
(centals)	780,000	756,000	620,000	103.2	125.8
(American bales)	163,000	158,000	130,000		

Tanganyika : Towards the end of July picking of early cotton was commenced in many districts. The Department of Agriculture sounded a note of warning on the desirability of early harvesting of cotton particularly in the Eastern Province where there was some prospect of light showers which would have slightly affected lustre. Crop prospects were generally satisfactory, except for late plantings in the Lake Victoria area.

Union of South Africa : On the basis of seed cotton production, that of lint, is now estimated at 13,000 centals (2,700 bales), 40.9 % of 1930-31, which was 31,800 (6,700) and 30.1 % of the mean for the five years ending 1929-30, 43,200 (9,050). Owing to the low price, however, only the better grades can be ginned and the actual production will no doubt be considerably lower than the figures of seed cotton indicate.

The poor crop this season is due to unremunerative prices, which brought about a wholesale reduction in the area planted, and to unfavourable weather.

FLAX

Fibre. — Of the twenty one flax producing countries of Europe (excluding the U. S. S. R.), there are at present to hand the data of the flax areas of fourteen countries, which in 1931 cultivated about 4/5 of the area under this crop in Europe. Among the countries for which data are still lacking, the most important are Rumania and Yugoslavia. In the group of fourteen countries mentioned above the area in cultivation in the present year represent 80 % of that of 1931 and 56 % of the average of the preceding quinquennium. There is reason to believe that, even when the missing data are known, the reduction in the area under flax for fibre in Europe will not bring about much change in the above percentages.

Though in Europe, there is a decrease in the area, there is reported in the U. S. S. R., on the contrary, an increase of 7.3 % compared with 1931 and of 79.4 % on the average of 1926-1930.

Owing to the great extension of the area of flax for fibre in the U. S. S. R., the increase recorded in this country will compensate by about threefold the reduction in the European countries, so that the total area of flax for fibre during the current year in Europe and in the U. S. S. R. will still be slightly larger than that of 1931 and nearly double the five-year average.

As regards the data of fibre production, figures are at present possessed only for a small number of countries (Austria, Belgium, Bulgaria, Estonia, Latvia and the Netherlands) and indicate about an average yield. In most of the European flax producing countries, the weather conditions in August were favourable to the crop and to harvesting operations. In the U. S. S. R., the crop had,

on September 1, already been harvested on a considerable area and was effected at a period when the straw was at the first yellow stage of ripening, this constituting a guarantee of the good quality of the fibre.

I. G.

Flax.

COUNTRIES	AREA						PRODUCTION						
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932	
				1931	Aver.							1931	Aver.
1,000 acres			= 100 = 100		1,000 centals			1,000 pounds			= 100 = 100		

Fibre.

Germany	11	16	38	68.1	29.6	117	—	—	11,684	—	—	—	—
Austria 1) . . .	8	8 1)	10	99.0	76.8	127	107 1)	146	12,699	10,701 1)	14,592	118.7	87.0
Belgium	21	36	59	57.9	35.5	149	254	542	14,887	25,370	54,180	58.7	27.5
Bulgaria	2	2	1	98.3	281.1	5	2	2	529	176	152	300.4	348.3
Estonia	36	45	83	80.0	43.8	80	131	208	8,015	13,056	20,826	61.4	38.5
Finland 2) . . .	11	10	11	112.5	101.5	—	—	28	—	—	2,845	—	—
France	25	26	79	98.7	32.1	—	138	589	—	13,788	58,875	—	—
N. Ireland . . .	6	7	31	81.9	19.5	—	31	131	—	3,091	13,058	—	—
Hungary	20	47	13	41.8	150.6	—	133	65	—	13,264	6,518	—	—
Italy	22	24	38	89.2	56.3	—	50	55	—	5,000	5,533	—	—
Latvia	78	104	150	75.5	52.3	209	287	440	20,878	28,660	43,955	72.8	47.5
Lithuania 2) . .	99	139	212	71.5	46.7	—	466	748	—	46,628	74,800	—	—
Netherlands . .	5	16	37	29.9	13.1	31	99	252	3,085	9,918	25,153	31.1	12.3
Poland	252	252	281	99.9	89.9	—	756	1,191	—	75,611	119,097	—	—
Czechoslovakia .	20	23	46	87.7	43.5	—	75	206	—	7,469	20,608	—	—
U. S. S. R. 3) . .	6,202	5,779	3,457	—	—	—	12,026	7,410	—	1,202,626	740,958	—	—

Linseed.

											Thousand bushels of 56 pounds		
	1932	1931	Average 1926 to 1930	% 1932	% 1931	1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932	% 1931
Austria	5	5	7	100.8	74.0	22	19	24	39	33	43	118.9	91.2
Belgium	21	36	59	57.9	35.5	93	182	279	166	326	498	51.0	33.4
Bulgaria	2	2	1	98.3	281.1	7	11	2	12	19	3	61.7	344.8
Latvia	78	104	150	75.5	52.3	205	279	411	366	499	735	73.4	49.8
U. S. S. R. . . .	4) 7,347	7,574	4,528	—	—	—	—	13,135	—	—	23,456	—	—
Canada	454	627	511	72.4	88.8	1,753	1,436	2,422	3,130	2,565	4,325	122.0	72.4
United States . .	2,667	2,325	3,040	114.7	87.7	7,448	6,200	11,453	13,300	11,071	20,452	120.1	65.0
India	3,241	3,008	3,224	107.7	100.5	9,206	8,445	8,355	16,440	15,080	14,920	109.0	110.2
French Morocco .	61	89	50	68.6	122.4	—	522	252	—	932	450	—	—
Argentina	5) 7,290 5)	8,640 5)	7,178	84.4	101.6	—	47,858	41,461	—	85,461	74,037	—	—

1) Production expressed in terms of air-dried stalks. — 1) Average 1927 to 1930. — 2) Flax and hemp. — 3) "Dolgounetz" variety. — 4) Total area (of "Dolgounetz" flax for fibre and flax for seed) sown as on 20 June 1932. — 5) Area sown.

* * *

Austria: At the end of August the flax crop had been mostly harvested. The fibre is rather short but of good quality.

Great Britain and Northern Ireland: This year's flax crop in Northern Ireland is of small area but the quality is quite good, especially considering the lack of rain during

the greater part of June. Pulling was completed in most districts and at the end of the month the crop was in steep or on the grass.

Hungary : In the last week of August the flax crop was in general short. Linseed yields were forecast to be average.

U. S. S. R. : On September 1, harvesting of flax for fibre (« dolgounetz » variety), had been effected on 4,576,000 acres or about 74 % of the area sown. Harvesting is practically finished in the western area, in the Tartar Republic and the Middle Volga. In the Novgorod area, which is one of the most important for fibre, harvesting had been finished on September 1 on about half the area sown, in western Siberia on about one third and in the Ural region on about one sixth.

Most of the flax was harvested at the yellow stage of ripening, thus guaranteeing a good quality of the fibre.

United States : Crop condition of linseed on September 1 this year was 47.7 compared with 61.3 on August 1 and 34.9 on September 1, 1931.

HEMP

Germany : The area sown to hemp and the other textile plants (excluding flax), is 800 acres against 750 last year and 2,300, the average for 1926-30 ; percentages : 107.3 and 35.3.

Austria : At the beginning of September the hemp crop had strong stalks and a satisfactory quality of seed.

At the beginning of September the hemp stems were vigorous and the quantity of seed was satisfactory.

The first estimates of production are as follows : air-dried stems (Rohfaser) : 21,600 centals against 17,300 last year and 17,700, the average for 1927-30 (125.0 % and 121.7 %); seed : 1,870 centals against 1,560 last year and 2,290, the average for 1926-30 (120.2 % and 81.7 %).

Hungary : At the end of August, the crop condition of the male stems was average, whereas that of the female stems varied from good to average.

Area this year is 16,729 acres, an increase of 7.9 % on that of last year (15,506 acres) and a decrease of 25 % on the average of the five years ending 1930 (22,302 acres).

Italy : Hemp yields are abundant ; retting is in full swing.

HOPS

Germany : The area sown to hops this year is nearly 20,000 acres compared with 25,400 last year and 36,200, the average for 1926-30 ; percentages : 78.1 and 54.8.

Belgium : At the end of August hop-picking began ; a poor crop is forecast.

Great Britain and Northern Ireland : In England and Wales the weather during the greater part of August was exceptionally fine and warm. Hops had improved and were generally healthy and strong. Crops are of good quality and the yield per acre is forecast at rather more than 12 cwt. or almost equal to the ten year average.

Hungary : Area this year is 442 acres, a decrease of 21.8 % on that of last year (566 acres) and equal to the average of the five years ending 1930.

Yugoslavia : Hop production in Slovenia, the principal area of production, is this year forecast, due to adverse weather, to be about 50 % smaller than that of last year.

Quality is however excellent. Forecasts of small production and good market demand have brought about a rise in prices which, towards the end of August, remained very firm.

Argentina : Except in the North of Santa Fé and Entre Rios the linseed condition at the end of August was satisfactory.

United States : The estimate of hop production has been considerably raised to 371,000 centals compared with 259,000 in 1931 and 304,000, the average for 1926-30; percentages 143.5 and 122.2.

TOBACCO

Germany : Production of tobacco in the season 1931-32 (July 1, 1931-June 30, 1932) amounts to 511,000 centals against 464,000 in 1930-31 and 441,000, the average for the preceding five seasons; percentages: 110.1 and 115.9.

Belgium : The tobacco crop has grown very well and harvesting has already begun.

Spain : The tobacco area this year is estimated at 12,350 acres compared with 8,900 in 1931 and 6,600, the average of 1926-1930; percentages: 138.4 and 186.5.

Production is estimated at 132,000 centals or 101.8 % of last year's figure (130,000) and 166.8 % of the 1926-1930 average (79,000).

Hungary : At the end of August the tobacco crop had grown well and the leaves were in healthy condition.

Area this year is 56,944 acres, a decrease of 8.5 % on that of last year (62,229 acres) and an increase of 1.3 % on the average of the five years ending 1930 (56,190 acres).

Italy : Tobacco was in progress in August.

United States : Production of tobacco is estimated at 10,280,000 centals compared with 16,009,000 in 1931 and 14,137,000, the average for 1926-1930; percentages: 64.2 and 72.7.

Cyprus : Toward the end of August the picking of tobacco was nearly completed. Satisfactory production was reported from the Kyrenia district.

Palestine : Second picking of tobacco crop is in progress. The crop is expected to be slightly under the average.

Japan : The crop condition of tobacco on September 1 was average. Weather conditions were favourable.

Algeria : Crop condition on September 1 was considered average and estimated at 100 against 90 at the beginning of the preceding month.

Production this year is 397,000 centals representing a decrease of 0.4 % on that of last year: 398,000 centals and a decrease of 20.4 % on the average of the five years ending 1930: 498,500 centals.

Eritrea : The tobacco area this year is 250 acres compared with 150 last year and 45, the average for 1926-30. Production is estimated at 1,320 centals against 810 last year and 190, the average.

Tanganyika : Towards the end of July progress was reported from the Iringa district, where harvesting and curing of Virginian and Turkish tobacco was still proceeding. The crops were said to be well up to anticipations.

Union of South Africa: Tobacco production is estimated at 196,100 centals compared with 164,800 in 1930-31 and 167,700, the average for the period 1925-26 to 1929-30; percentages: 119.0 and 116.9.

OTHER PRODUCTS

Tea.

India: According to a report dated August 25 received from the Department of Commercial Intelligence and Statistics of India, weather conditions in North India during July were generally seasonable and favourable to the growth of the crop. Prospects at the beginning of August were moderately good. Statistics to the end of July recorded an increase of rather over $4\frac{1}{4}$ million lbs. as compared with the outturn to the same date of last year.

In South India, stormy monsoon conditions prevailed generally during July. Crop prospects were not good; in South India, the outturn was 10.45 % ahead of that to the same date of last year.

Japan: Owing to unfavourable weather conditions, the crop condition of tea is still rather bad.

Coffee.

Eritrea: The coffee area for 1932-33 is estimated at 670 acres compared with the average of 300 acres for the period 1926-27 to 1929-30.

Production this year is estimated at 1,650 centals or 97.4 % more than last year (840 centals) and 195.3 % above the average of the period 1926-27 to 1930-31 (560).

Tanganyika: Towards the end of July favourable views were held on the coffee crop. In the Bukoba district picking was nearing completion. In the northern area good crops were anticipated.

Cacao.

Gold Coast: By the end of July practically the whole of the minor crop had ripened and between 80 % and 90 % had been harvested, the weather having been favourable.

In Ashanti production was reported to be about normal but the crop there is a relatively small proportion of the total minor crop.

The Eastern Province crop has been very small and in the Central Province, although the Saltpond district is reported to be normal, the northern area, including Oda, has produced very little. The total for the two provinces is much below normal and definitely small. In the Western Province the crop is reported to be under normal but in relation to the total crop of the Colony, production there is negligible.

In general the crop is the smallest recorded and there are indications of a general diminution of the minor crop with the increasing age of the trees.

District reports showed that about 75 % to 80 % of the crop had been marketed by the end of July and the purchases of merchants were reported to be considerably below the usual quantities for June and July, which further supports the above statements concerning production. The total stocks of old crop in the country are reported to be about 31,136 lb. and of new crop about 5,600 lb.

There is no change in the prospects for the coming major crop. Conditions generally have been favourable to growth.

Crop movement has been as follows:—

	July 1932	October 1931 to July 1932	July 1931	October 1930 to July 1931
Arrivals by rail at Takoradi and Accra (1000 lbs.) . . .	2,636	253,453	1,060	268,623
Shipments from Takoradi and Accra (1000 lb.)	7,735	334,715	9,724	378,646
Shipments from all ports (1000 lb.)	17,132	430,885	14,155	466,619
Stocks at Takoradi and Accra beach at end of July (1000 lb.)	12,148	—	—	—

Groundnuts.

United States : The estimate of area under groundnuts has been reduced to 1,586,000 acres (against 1,687,000 last year and the 1926-30 average of 1,779,000). Production is now estimated at 10,260,000 centals compared with 15,544,000 in 1931 and 11,974,000 on the average for 1926-1930 ; percentages 66.0 and 85.7.

Mexico : The rainfall of July has greatly improved the groundnut crop in the central region.

Egypt : The groundnut crop is growing satisfactorily. Pods are developing in the early-sown areas. Crop condition as on September 1 was 100 as in August against 98 on September 1, 1931.

Tanganyika : Towards the end of July the groundnut crop was reported to be generally satisfactory in the Central Line area but not too good in the Lake Victoria area and normal elsewhere.

Union of South Africa : The total European crop for 1931-32 is estimated at 46,000 centals, a decrease of 40 % on that of 1930-31 (81,200) and of 62 % on the mean of the five years ending 1929-30 (121,000).

The continuous drought in Northern Transvaal, the principal area of production, is responsible for the very poor crop.

Rapeseed and sesamum.

Germany : The area sown to colza and navette this year is 14,900 acres against 24,800 in 1931 and 51,500, the average for 1926-30 ; percentages : 60.0 and 28.9.

Austria : Production this year is 52,000 centals (104,100 bushels), showing a decrease of 7.5 % on that of last year : 56,200 centals (112,400 bushels) and an increase of 13.6 % on the average of the five years ending 1930 : 45,800 centals (91,600 bushels).

Netherlands : Production of colza this year is now estimated at 62,000 centals (123,000 bushels), showing a decrease of 28 % on that of last year 86,000 centals (172,000 bushels) and a decrease of 50 % on the average of the five years ending 1930 : 125,000 centals (250,000 bushels).

Czechoslovakia : Production this year is estimated at 40,000 centals (81,000 bushels) against 37,000 (74,000) last year and 46,000 (93,000), the average for the preceding quinquennium; percentages : 108.9 and 87.0.

Mexico : It is expected that the area sown this year will be smaller than that of last year owing to the unfavourable weather conditions.

Palestine : Picking and threshing of sesame are in progress. Harvesting was general throughout August and has been completed in the South. The area under this crop has been very much reduced. Yields are poor and in many places will not exceed 10 % of normal.

Tanganyika : Towards the end of July the sesame crop was reported to be fairly satisfactory.

India : Cutting, steeping and washing of jute was progressing in the latter half of August in Bengal. In Bihar and Orissa, the condition of jute was good in Balasore. The official September estimate of the jute area is 1,899,000 acres compared with 1,862,000 last year and 3,454,000, the average for 1926-1930 ; percentages : 102.0 and 55.0. The production figure is 23,380,000 centals against 22,264,000 and 41,216,000 respectively ; percentages : 105.0 and 56.7.

Sericulture.

Spain : The quantity of silkworm eggs incubated this year is 12,815 ounces compared with 27,154, the average for the years 1926-1929 ; production of cocoons is forecast at 1,199,000 lb. against 2,031,000, the average for 1926-1929.

Italy : Production of mulberry leaves this year is estimated at 28,288,000 centals against 27,550,000 in 1931 and 30,836,000 the average for the period 1926-1930 ; percentages : 102.7 and 91.7.

It appears that the production of cocoons in the present sericultural season will nearly equal that of 1931 (76 million lb.).

Korea : Production of spring cocoons this year is estimated 29,316,000 lb. showing an increase of 6.2 % on that of last year (27,603,000 lb.) an increase of 30.7 % on the average of the five years ending 1930 (22,437,000 lb.).

FODDER CROPS

During August, warm, dry weather predominated in nearly all the countries of Europe but rainfall, principally in storms occurring particularly towards the end of August and at the beginning of September in large areas of the different countries, considerably mitigated the influence of the drought, with the result that, in most of the countries, the crop condition of fodder plants, which on August 1 ranged from average to above average, on September 1 remained about the same.

The period of fine, dry weather which occurred during August in nearly all European countries was very favourable for the cutting and carting of hay. The quality of the hay is in general satisfactory.

In North America, in both the United States and Canada, the need for rain to improve the crop condition of meadows and pastures was felt at the end of August over very large areas.

* * *

Germany : Fodder plants, meadows and pastures have in some places suffered because of the drought during August but in general an abundant second cutting of good quality is anticipated.

The areas sown to the principal fodder crops compared with those of last year and the average of 1926-1930 (for mangolds and turnips: 1927 to 1930) are as follows:

	1932	1931	Average	1931 = 100	% 1932 Average = 100
	(Thousand acres)				
Mangolds	2,012	1,933	1,786	104.1	112.7
Turnips	671	656	639	102.2	105.1
Clover	4,321	4,275	4,417	101.1	97.8
Alfalfa	777	758	705	102.4	110.2
Irrigated meadows	1,007	998	955	101.0	105.5
Other meadows	12,587	12,611	12,641	99.8	99.6
Pastures	6,569	6,563	6,305	100.1	104.2

Austria: At the beginning of September, mangolds were growing satisfactorily only in the damper regions while, in the others, the injurious influence of the drought on growth was accentuated.

The prevalently warm weather in August favoured harvesting of the second cutting of temporary meadows. The hay obtained is everywhere of good quality. The quantities obtained from the first two cuttings of red clover, alfalfa and mixed clover amounted to 16,887,000 centals (844,000 short tons) compared with 19,820,000 (991,000) last year.

Production from the first cutting of permanent meadows (including mountain meadows) this year amounted to 59,635,000 centals (2,982,000 short tons) against 44,578,000 (2,229,000) last year. The hay is quite dry and of good quality. Harvesting of the second cutting of permanent meadows yielding more than one crop is in progress. Yields vary greatly but are generally satisfactory. At the end of August the growth of alpine pastures was still satisfactory but the hydrometric situation was gradually deteriorating. Common pastures generally furnish little feed for livestock.

Belgium: Beneficial rain towards the end of August encouraged the growth of pasture grass. Aftermath crops have turned out well and are being turned under good conditions.

Denmark: In several districts fodder roots are showing signs of want of rain. Crop condition on September 1 by the Institute's system, was 98 for turnips and 97 for mangolds compared with 100 and 98 respectively on August 1. The pastures are also suffering from the continual absence of rain.

Estonia: The drought during July checked the growth of the grass and reduced the production of hay from temporary meadows. The rains at the beginning of August however, had a beneficial influence on the permanent meadows and pastures, although the cutting of permanent meadows was partially checked. The hay is in general of good quality.

Production of hay is as follows:

	1933	1931	Average 1926-30	1931 = 100	% 1932 Average = 100
Temporary meadows (000 centals) .	9,379	11,175	10,090	83.9	92.9
(000 short tons) .	469	559	505		
Permanent meadows (000 centals) .	21,728	19,764	18,510	109.9	117.4
(000 short tons) .	1,086	988	925		

This year's area of root crops for fodder is estimated at 19,300 acres, shawing a decrease of 3.6 % on that of last year (20,100 acres) and an increase of 11.1 % on the average of the five years ending 1930 (17,400 acres).

Irish Free State: The weather during August was ideal for harvesting operations and enabled the balance of the hay crop to be saved in excellent conditions. The yields of first and second crop hay were below the average but of good quality, those of meadow hay were above average and also of good quality; the aggregate yield of all classes of hay was about average. Pastures were well covered with good grass during the month.

Finland: The estimates of fodder production this year, compared with those of 1931 and the average of the five years ending 1930, are as follows:

	1932	1931	Average 1926-30	1932 = 100	1931 Average = 100
Permanent meadows (000 centals) ...	7,253	8,949	9,948	81.1	72.9
(000 short tons).	363	447	497		
Temporary meadows (000 centals) ...	59,598	62,146	52,563	95.9	113.4
(000 short tons).	2,980	3,107	2,628		
Turnips (000 centals) ...	10,644	11,413	10,491	93.3	101.5
(000 short tons).	532	571	525		
Other roots and tubers (000 centals) ...	3,408	1,911	2,096	178.3	162.6
(000 short tons).	170	96	105		

France: The distribution of rainfall was irregular from mid-August to mid-September. In most of the country the aftermath crops have been carted in excellent conditions and yields seem to be good both in quantity and in quality; lack of rain, on the contrary, has been detrimental to vegetables and root crops and has checked field operations for the new sowings. In the Southwest, on the contrary, violent storms have in several areas hindered carting of aftermath crops, the quality of which is mediocre.

Great Britain and Northern Ireland: In England and Wales the weather during the greater part of August was exceptionally fine and warm. Except in a few isolated areas, the hay harvest was completed under very satisfactory conditions, although a proportion of the later cut hay was damaged by rain during the latter half of July. Yields from temporary meadows are estimated at about 28 $\frac{1}{2}$ cwt. per acre and those from permanent meadows at about 19 $\frac{3}{4}$ cwt. per acre. Grass was plentiful in most districts during August and aftermaths have grown well.

Root crops benefited from the warmer and sunnier weather of August and made very satisfactory progress during the month but are generally backward and patchy as a result of unfavourable conditions earlier in the season. Mangolds were fairly promising in most districts but yields are anticipated to be rather below average. Turnips and swedes were growing well in some parts of the country but over the whole of England and Wales yields will probably be below average.

The weather in Northern Ireland during August was generally dry and the temperature fairly high, but conditions became unsettled towards the end of the month. Mangels made very satisfactory progress during the month and a good yield is anticipated. In a few areas, however, it is feared that, owing to recent droughty conditions, the yield will be below average. Turnips also improved considerably during August and the crops sown early in the year are looking extremely well and promise to give heavy yields. Later sown crops, while patchy in a number of districts, have also made satisfactory progress. Haymaking was completed in most districts at the end of August, and although some late cut fields were damaged by the showery weather in the last week, the crop generally is of good quality, although the yield will be lighter than in 1931. The weather conditions in the early part of the month, apart

Condition of Fodder Crops.

CROPS AND COUNTRIES	CROP CONDITION (†)								
	September 1, 1932			August 1, 1932			September 1, 1931		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
CLOVER:									
Germany	2.8	—	—	2.7	—	—	2.7	—	—
Austria 1)	2.8	—	—	2.6	—	—	2.8	—	—
Scotland	—	—	95	—	—	—	105	—	—
Lithuania	123	—	—	—	—	—	113	—	—
Netherlands { red clover.	—	—	2) 67	2) 70	2) 63	—	—	—	—
{ white clover.	—	—	—	—	—	—	—	—	—
ALFALFA:									
Germany	2.7	—	—	2.6	—	—	2.5	—	—
Austria	2.8	—	—	2.9	—	—	2.8	—	—
MANGOLDS:									
Germany	2.6	—	—	2.5	—	—	2.5	—	—
Austria	2.7	—	—	2.4	—	—	2.5	—	—
Bulgaria	130	—	—	130	—	—	160	—	—
Denmark	101	—	—	—	—	99	—	—	93
Scotland	—	—	95	—	100	—	—	—	95
Finland 3)	—	—	94	—	—	85	—	—	85
Lithuania	120	—	—	120	—	—	113	—	—
Switzerland	—	—	97	—	—	95	101	—	—
Canada	—	—	95	—	—	94	—	—	94
TEMPORARY MEADOWS:									
Austria 4)	—	—	3.1	2.8	—	—	2.7	—	—
Bulgaria	110	—	—	110	—	—	150	—	—
Norway	—	—	95	—	—	—	—	—	99
Sweden	109	—	—	—	—	—	116	—	—
Switzerland	3.9	—	—	3.9	—	—	—	—	—
PERMANENT MEADOWS:									
Germany { irrigated meadows	2.5	—	—	2.4	—	—	2.3	—	—
{ other meadows	2.8	—	—	2.7	—	—	2.6	—	—
Austria	—	—	3.1	2.7	—	—	2.8	—	—
Bulgaria	135	—	—	130	—	—	150	—	—
Estonia	108	—	—	110	—	—	116	—	—
Finland	—	100	—	—	—	98	—	—	99
Lithuania	110	—	—	—	—	—	103	—	—
Sweden 5)	—	—	97	—	—	—	—	—	97
Switzerland	4.1	—	—	4.0	—	—	—	—	—
PASTURES:									
Austria	—	—	3.3	2.9	—	—	—	3.0	—
Denmark	—	—	82	—	—	84	—	—	99
Scotland	—	100	—	—	—	—	—	—	—
Netherlands	2) 75	—	—	—	—	2) 58	—	—	—
Switzerland	3.7	—	—	3.6	—	—	—	—	—
Canada	—	—	92	—	—	93	—	—	91

a) above the average. — b) average. — c) below the average. — d) excellent. — e) good. — f) average. — g) bad. — h) very bad. — †) See explanation of the various systems on page 579. — 1) Red clover. — 2) At the middle of the preceding month. — 3) Turnips. — 4) Klee grass. — 5) Meadows for hay.

from local showers, were favourable for the saving of the grass seed crop. Grass is abundant and a plentiful supply of winter keep will be available on most farms.

In Scotland August weather was dry and bright but pastures were not affected to any serious extent by lack of moisture. The hay harvest was generally completed under more favourable conditions than were general when the work began. The rye-grass and clover crop is rather light. Supplies of dry fodder are good and are sufficient for all requirements. Wheat milling offals are scarce and dear but otherwise supplies of concentrated foods are very good. Prices are rising. Crop condition of turnips and swedes on September 1 was 95.

In Scotland it is reported that, with the advance of the season and the reduced supply of grass, the milk yield is falling off somewhat.

Hungary : After rainfall in the first ten days of August the mangold crop has considerably improved. The foliage is fresh and the roots are well developed. A fairly good production is forecast. The second cutting of clover has given fairly good results, whereas the third and, in some cases, the fourth cutting of alfalfa has given average yields. Clover and alfalfa grown for seed are generally in fairly good condition. Maize for green fodder and mohar have generally given average yields. It is anticipated that the second cutting of permanent meadows will give below average yields. The growth of pastures is in general unsatisfactory.

Italy : During August the fodder crops grew well ; in the South they suffered somewhat from the dry weather. During the latter half of August sowing of autumn winter catch crops began and mowing of meadows proceeded with good results.

Latvia : The quality of the clover crop was indicated to be good by 91.3 % of the total number of agricultural correspondents, average by 8 % and bad by 0.7 %.

Production of hay, of clover and other grass this year is estimated at 35,370,000 centals (1,768,000 short tons) showing an increase of 1.2 % on that of last year: 34,946,000 centals (1,747,000 short tons) and an increase of 46.3 % on the average of the five years ending 1930: 24,182,000 centals (1,209,000 short tons).

Production of hay from permanent meadows this year is estimated 40,495,000 centals (2,025,000 short tons), showing a decrease of 5.2 % on that of last year: 42,734,000 centals (2,137,000 short tons) and an increase of 14.3 % on the average of the four years ending 1930: 35,429,000 centals (1,771,000 short tons).

Lithuania : The weather has encouraged the growth of the fodder crops. The area under mangolds this year is 123,000 acres compared with 136,000 in 1931 and 124,000, the average for 1926-30; percentages: 90.2 and 99.1.

Norway : Cutting and carting are finished. Quality is in general very good and compensates for the smaller quantity obtained which, for the whole of the country, is about 5 % below the average. Crop condition of fodder roots varies; these crops have suffered from drought in the southern and eastern regions. On the whole, however, production is expected to be fairly good. Crop conditions by the Institute's system at the end of August were 99 for turnips and 102 for turnip-cabbage.

Rumania : At the end of August the meadows and pastures presented a good aspect in hill and mountain areas whereas the hay crop was mediocre and the pastures were not very satisfactory in many plain areas.

At the beginning of September mangolds were growing satisfactorily only in the damper areas while in the others, the injurious influence of the drought on the plants was accentuated.

The prevalently warm weather of August favoured harvesting the second cutting of temporary meadows. The hay obtained is everywhere of good quality. The quantities obtained from the first two cuttings of red clover, alfalfa and mixed clover, amount to 16,887,000 centals (844,000 short tons) compared with 19,820,000 (991,000) last year.

The first cutting of permanent meadows (including mountain meadows) this year yielded 59,635,000 centals (2,982,000 short tons) against 44,578,000 (2,229,000) last year. The hay is dry and of good quality. The second crop of permanent meadows yielding more than one crop is being carted. Yields vary greatly but are generally satisfactory. At the end of August the growth of alpine pastures was still satisfactory but the hydrometric situation was gradually deteriorating. The common pastures, are in general furnishing little feed.

Switzerland : During August, fine weather predominated and temperature was sometimes high. Damage to the crops by persistent rain in the preceding month was consequently partly compensated for. The aftermath crop was cut fairly rapidly and was satisfactory as regards both quality and quantity.

The condition of permanent and temporary meadows is a little better than last month. If the dry weather does not continue too long, it seems that a good yield of autumn grass may be counted upon. Sunny weather in the last few weeks has had a favourable effect on the alpine pastures but the damage caused by the wet summer has not been entirely compensated for.

Canada : According to telegrams of August and September 10, pastures were suffering from drought in many provinces and rain was needed to improve the feed situation generally.

United States : The latest estimate of production of tame hay with details for the chief varieties, is given in the following summary :

		1932	1931	Average 1926-30	% 1931 = 100	1932 Average = 100
Tame hay	(000 centals). . .	1,371,740	1,284,260	1,446,116	{	{
	(000 short tons). .	68,587	64,213	72,306		
<i>including :</i>						
Alfalfa	(000 centals). . .	529,900	419,380	540,752	{	{
	(000 short tons). .	26,495	20,969	27,038		
Clover and	(000 centals). . .	520,520	547,960	798,400	{	{
timothy	(000 short tons). .	26,026	27,398	39,920		

In the last week of August pastures were still in serious need of rains in the east-central section; moisture was also needed in much of the Southwest and in the Pacific Northwest. Beneficial rains occurred in Minnesota, Wisconsin, South Dakota and in many parts of the great western grazing country from Utah northward.

LIVESTOCK AND DERIVATIVES

Milk production in Germany.

According to the results of the estimates for 1931, the annual milk yield per cow is on the average 522 Imperial gallons (627 American gallons); the average for goats is 121 (145). Previous estimates for 1928 were 488 (586) and 99 (119) respectively. For 1931, reckoning a total of about 9,659,000 dairy cows and 2,053,000 goats, production of cow's milk is estimated at 5,038 million Imperial gallons (6,049 million American gallons) and of goat's milk, at 242 millions (291 millions), giving a total milk production of 5,280 millions (6,340 millions).

According to the estimates for 1931, it is calculated that the cow's milk is utilised as follows :—

(1) For immediate consumption : 29.3 % = 1,474 million Imperial gallons or 1,770 million American gallons.

(2) For conversion to butter and cheese : 57.0 % = 2,882 (3,461).

(3) For feeding livestock : 13.7 % = 682 (819).

It is further estimated that of the goat's milk produced, 11.4 % or 22 million Imperial gallons (26 million American gallons) is used for the rearing of goat-kids. Previous estimates distributed total production as follows : immediate consumption 32 %, conversion to butter and cheese 55 % and rearing of calves and goat-kids 13 %.

Livestock in France in 1931-32.

The following table shows the changes which have taken place in the numbers of the different kinds of livestock in France since the war, with 1913 as a basis of comparison.

Year	Horses	Mules	Asses	Cattle	Sheep	Pigs	Goats
1931.	2,919,700	143,600	240,970	15,433,840	9,844,690	6,397,970	1,488,120
1930.	2,924,230	153,980	251,690	15,467,460	10,152,280	6,329,210	1,675,380
1929.	2,985,650	143,270	234,350	15,631,140	10,451,760	6,101,810	1,884,770
1928.	2,936,120	166,280	249,700	15,005,080	10,445,010	6,016,940	1,372,200
1927.	2,927,230	182,720	259,800	14,940,960	10,693,120	6,019,450	1,405,050
1926.	2,893,960	184,810	263,830	14,482,440	10,775,260	5,776,900	1,388,490
1925.	2,880,380	188,320	272,970	14,372,980	10,537,020	5,792,860	1,377,910
1924.	2,859,400	192,930	279,640	14,024,960	10,171,520	5,801,830	1,376,510
1923.	2,847,970	192,260	283,760	13,749,290	9,925,310	5,405,840	1,352,630
1922.	2,778,270	185,640	291,110	13,575,840	9,782,420	5,195,740	1,368,140
1921.	2,706,110	186,420	295,780	13,343,440	9,599,560	5,166,080	1,361,180
1920.	2,635,350	180,600	298,180	13,217,240	9,405,870	4,941,460	1,340,890
1913 (1)	3,220,080	188,280	356,310	14,787,710	16,131,390	7,035,850	1,434,970

(1) Exclusive of Alsace and Lorraine.

An examination of the table shows, in the first place, more or less considerable decreases since 1930 in all kinds of livestock except pigs, the decrease being undoubtedly due to the very severe crisis existing in the livestock industry; this decrease is, however, very small for horses — 0.2 % — and for cattle — also 0.2 % — a little larger for sheep — 3 % —, for asses — 4.3 % — and for mules — 6.7 % — and relatively large for goats, the number of which has decreased by 11.2 %; the number of pigs has risen slightly — by 1.1 %.

Entering into greater detail, differences are found to exist in the movement of the numbers of the various kinds of livestock since the war.

In 1930, there was an increase in the number of asses but it seems that in 1931 the decline noted since the war, continued; the decrease at present is 19 % compared with 1920 and nearly 32 % compared with 1913.

In mule rearing the same tendency may be noted with the difference that, thanks to army requirements, the decrease during the war was relatively very small and that, owing to the demand for export in the first few subsequent years there took place a continual development of rearing until 1924 when a decline set in which was checked in 1930 and then continued this year; compared with 1920, the decrease is over 20 % and compared with 1913, nearly 24 %.

In the horse rearing industry, like that of cattle, the reconstruction of herds continued regularly until 1929, when there was a fairly decided setback; the relatively small decrease in the total number of horses from 1930 to 1931 may probably be attributed to the relatively large increase of nearly 9 % in the number of horses aged three years and under in 1929. From 1929 to 1930 there took place, on the contrary, a sharp decrease of over 10 % in the number of animals aged less than three years and a new though small decrease of 1.3 % in 1931. The present crisis in the horse-rearing industry moreover, and the restrictions imposed on export and import will have two different effects: a

decrease in the number of births on the one hand and difficulty in selling the animals on the other; this may result in a certain stability in the years 1932, 1933 and even 1934, but the decline in horse rearing indicated will have its repercussion on the total number in the following years.

Analogous conclusions may be drawn from an examination of the figures for cattle; the number of animals under one year old, which showed a very large increase of nearly 40 % in 1929, decreased by 350,000 head in 1930 or over 12 % and by 100,000 head or 4 %, in 1931; there is no quite parallel movement to be remarked in the number of animals over one year old, which, after a slight decrease of 100,000 head or 3.3 % in 1928 and 1929, increased in the following two years by 60,000 head, that is by a little less than 2 %. The number of cows, which increased uninterruptedly until last year, decreased very slightly this year by 14,000 head or 0.2 %. The number of bulls and bullocks is on the increase due particularly to low prices. The crisis in the cattle industry, arising from the general economic situation and the considerable fall in prices and, on the whole, fairly abundant fodder crops, will result on the one hand in a decrease in the number of calves born and on the other, in a larger proportion of unsold mature cattle kept in the stable, with the same repercussion on the total number of cattle in subsequent years as for horses.

The decline in sheep numbers, which had been slowly recovering, set in during 1926. The decrease this year compared with 1926 is more than 9 % for ewes over one year old (627,000 head), of nearly 9 % for wethers over one year old, of 7 % for lambs and ewe-lambs under one year old (186,000 head) and of only 1 % for rams, the number of which is more sensitive to conditions of sale.

Though, for pigs, there is an increase in the total number due to an increase of 40,000 head or 1.3 % (700,000 head or 2.8 % more than in 1921) in the number of young pigs; there should be noted a decrease of 1.3 % in the number of sows (9,900 head), which will probably have its effect on the total number in 1932.

Lastly, the number of goats, after an extraordinary increase in 1929 (512,000 head or 37 %) has greatly decreased by nearly 21 % in the last two years.

The general idea obtained from the above data is that of a general retrogressive tendency for all kinds of livestock, which will not, however, perhaps be very marked in 1932 because of the low prices paid for the animals and the relative abundance of fodder crops.

Livestock in Great Britain and Northern Ireland.

The numbers of livestock, which, with the exception of horses, showed general increases in 1931 have been further augmented this year. The results of the returns made as on June 4, 1932 compared with figures for previous years, are given in the following table.

The increase of 4.8 % in the total number of cattle since 1931 makes this year's figure a record one. Total dairy cattle also reached a record with a net increase of about 80,000 head. Increases of 72,900 (3.6 %) and 30,200 (9.4 %) in the numbers of cows and heifers in milk and cows in calf respectively were partly offset by a decrease of 22,800 (5.4 %) in the number of heifers in calf.

England and Wales.

YEAR	Horses	Cattle				Sheep	Pigs
		Total	Cows and heifers in milk	Cows in calf but not in milk	Heifers in calf		
1932.	916,600	6,355,600	2,116,000	351,900	402,500	18,476,900	3,181,000
1931.	938,500	6,065,000	2,043,100	321,700	425,300	17,749,200	2,783,000
1930.	961,300	5,849,800	2,033,400	288,800	352,800	16,315,800	2,310,200
1929.	999,300	5,957,600	2,054,100	293,700	364,800	16,105,500	2,366,500
1928.	1,038,400	6,026,000	2,066,200	301,700	355,200	16,388,100	2,967,900
1927.	1,077,200	6,275,200	2,096,400	307,000	387,300	17,072,300	2,691,500
1926.	1,128,800	6,253,100	2,065,100	294,600	389,600	16,858,700	2,200,000
1925.	1,164,100	6,163,300	2,035,100	299,600	378,500	15,974,400	2,644,356
1924.	1,232,198	5,894,329	2,014,241	281,556	367,405	14,843,195	3,228,330
1923.	1,281,279	5,822,992	1,974,546	269,021	371,230	13,835,533	2,611,606
1922.	1,340,495	5,722,661	1,933,986	288,634	299,321	13,438,020	2,298,936

Among "other cattle" those under one year old increased by 96,900 head (8 %) and those one year old and under two increased by 110,700 head (9.8 %) whereas cattle two years old and over showed only a slight increase of 2,700 (0.3 %). Cattle numbers have now well exceeded the high point previously reached in 1927.

The total number of sheep this year is 4.1 % larger than in 1931 and the highest recorded since 1911. The heaviest increase is that of 361,300 (5 %) in the number of breeding ewes. There has been an increase in recent years, with fluctuations in the period 1928-1930, from about 13 ½ million head in 1922 to 18 ½ million in 1932.

The rate of increase in the number of pigs, like that of the number of sheep, has slackened this year. The total number of pigs has increased by nearly 400,000 head (14.3 %) since 1931 compared with an increase of 20 % from 1930 to 1931. This year's number is the highest recorded in any previous year except 1924. Of the total increase of about 397,000 head, 376,000 was due to an increase of 15.8 % in "other pigs" while breeding sows increased by about 22,000 head (5.5 %).

The decrease in the number of horses noted since 1921 has continued in 1932. The rate of decrease has, however, again slightly slackened, the fall in 1932 being 2.3 % against 2.4 % from 1930 to 1931 and 3.8 % from 1929 to 1930. The numbers of horses used for agricultural purposes in the same periods show a similar tendency (decreases 1.8 %, 2.4 % and 3.4 % respectively). The number of foals shows an important increase on 1931; previously, except for the year 1930, there had been a continuous decline since 1919.

As in England and Wales, livestock in Scotland, except for horses, show increases in numbers on 1931.

Cattle have increased in number since last year by 1.1 % and although not reaching the high points of 1929 and 1930, are still at a comparatively high level; with the exception of two-year-old feeding cattle, which have decreased by 3,500, all classes of cattle show increases. Of the total increase in cattle this year of 13,000 head, 6,300 is due to an increase in dairy cattle whereas last year a slight decrease was noted.

The total number of sheep has increased with only one interruption in the last decade in 1929, from about 6.7 million head in 1922 to 7.8 million in 1932 and

Scotland.

YEAR	Horses	Cattle				Sheep	Pigs
		Total	Cows in milk	Cows in calf but not in milk	Heifers in calf		
1932.	150,200	1,221,800	349,200	52,200	58,900	7,846,600	163,200
1931.	152,700	1,209,000	346,200	51,700	56,100	7,830,800	162,200
1930.	156,300	1,236,000	350,800	46,900	55,400	7,649,500	143,300
1929.	161,000	1,232,900	355,600	46,800	51,300	7,555,500	142,200
1928.	165,738	1,213,848	356,121	50,812	52,284	7,578,704	195,504
1927.	172,102	1,210,450	355,460	49,273	55,584	7,535,477	196,613
1926.	178,695	1,197,828	357,315	42,868	57,263	7,203,134	145,419
1925.	185,433	1,204,791	348,326	49,798	52,227	7,118,820	154,220
1924.	193,696	1,164,397	352,256	46,439	49,693	6,886,152	198,836
1923.	203,833	1,193,590	361,742	42,132	51,489	6,785,723	186,027
1922.	211,769	1,146,807	358,943	44,695	48,593	6,684,097	150,884

has now reached a comparatively high level. The increase on 1931 is, however, only 15,800 or 0.2 %. Ewes, numbering 3,421,300 head, exceed last year's record number by 6,300 (0.2 %) and lambs have reached a record number of 3,366,600 with an increase of 27,500 head. Rams have also increased (+ 1,300) but other sheep one year old and over have decreased by 19,300 head or 2 %.

Pigs are on the upward trend with an increase of 1,000 or 0.6 % on 1931, the number now being 163,200. Previous high points were 196,613 in 1927 and 198,836 in 1924. Sows have, however, decreased by 700 (3.4 %) partly offsetting the increases in boars (+ 100 head) and other pigs (+ 1,600 head).

Horses have declined continuously in number since 1922, the number now being 150,200 head compared with 152,700 last year (— 1.6 %). The number of horses used for agricultural purposes has reached a record low point of 115,800 head or 1,400 less than last year. Unbroken horses have decreased by 100 or 0.7 % while the number of foals is about the same as last year.

The figures for Northern Ireland are not yet available.

Livestock in Chile.

Data complementary to the livestock census of 30 June 1930 for cattle, sheep and horses, are now possessed. In the following table the complete classification by age and sex is given for the three kinds indicated.

Census 30 June 1930 (Head).

Cattle :

under 1 year old . . .	419,656
from 1 to 3 years old . .	683,543
Bulls	30,320
Calves	367,090
Bullocks	19,647
Cows	266,486
over 3 years old . . .	1,284,741
Bulls	29,042
Bullock calves . . .	96,310
Bullocks	428,859
Cows	730,530

Sheep :

under 1 year old . . .	1,636,553
Lambs	706,388
Ewe-lambs	930,165
over 1 year old . . .	4,626,929
Wethers	172,124
Sheep, castrated . .	404,369
Ewes	4,050,436

Horses :

Foals	23,795
Horses	221,646
Mares	195,586

Livestock in Uruguay.

The following table gives the results of the estimates made in the course of the present year for cattle and sheep by the Statistical Office of the Ministry of Industries compared with those of the 1930 census.

Year	Cattle	Sheep
1932	7,372,381	15,405,607
1930	7,127,912	20,558,124

The very large decrease of nearly 5 million head in the number of sheep has not been compensated for by the increase of about 244,000 head of cattle and this abnormal retrogression in sheep rearing, which until now has followed the fluctuations of cattle rearing, is giving serious anxiety to the government, which proposes to take steps to protect the zootechnical patrimony of the country.

Condition of Livestock and Dairy Production.

Estonia : The milk yield in July was smaller than last year as the pastures did not furnish enough feed owing to drought.

Irish Free State : Milk yields were well maintained in August.

Great Britain and Northern Ireland : In England and Wales milk yields have shown the usual seasonal decline.

In Northern Ireland store and dairy cattle, with few exceptions, maintained good health. The milk yield, while showing a slight decrease as compared with July, is of average dimensions for this period of the year. The condition and health of sheep and lambs are good. In certain localities, however, more trouble than usual was experienced due to "maggot fly", which was encouraged by the alternate spells of showers and sunshine.

Netherlands : Fodder supplies more than suffice for the feeding of livestock. Milk production is generally slightly above the normal.

Switzerland : According to the preliminary results of an inquiry made by the Swiss Peasants' Union, the quantity of milk delivered at the depôts of 410 societies during July shows an increase of 2.8 % compared with that of the corresponding month of 1931. The German area of Switzerland reports little change, the increase being only $\frac{1}{3}$ %. The French section on, the contrary, reports an increase of 13 % in deliveries to depôts compared with July 1931.

United States : In the last week of August livestock continued to hold up well, although in local areas they were poor to only fair, with feeding necessary in some of the drier sections.

There were about 5 % less cattle on feed for market in the corn belt States on August 1 this year than on August 1, 1931 according to the estimate of the Department of Agriculture, most of the reduction being recorded in the area west of the Missouri River. The proportion of light weight cattle - under 900 lbs - is much larger than last year. Total shipments of stocker and feeder cattle inspected through markets into corn belt states during the 6 months January 1 to July 1 this year were only 71 % as large as in the same period in 1931 and were the smallest for the period in at least 13 years. Cattle feeders report intentions to buy considerably more feeder cattle in the period August-December this year than last, conditional upon the local financial situation and the prices of feeder cattle. The largest purchases are indicated in the western part of the corn belt where the short maize crop of 1931 greatly reduced feeding.

Union of South Africa: Exports of wool through Union ports for the complete season 1931-32, ending 30 June, were 298 million pounds greasy equivalent, against 283 million in 1930-31. There were record shipments in the last few months of the season. Stocks at East London, Port Elizabeth, Durban, Cape Town and Mossel Bay on 30 June amounted to 18 million pounds unsold wool and 4 million pounds sold wool against 13 million and 1.9 million respectively on 30 June 1931, totals for these two dates being respectively 22 million pounds and 15 million pounds.

The 1931-32 season on the whole was a difficult one owing to the further fall in prices and the unfavourable exchange position, particularly with respect to Australia, following the suspension of the gold standard by Great Britain in September 1931. In January 1932 the increase in the export subsidy, originally granted in November 1931, stimulated sales, however, in the latter part of the season.

Exceptional cold and drought prevailed in July. Good rains continued to fall in the Cape Western Province and some light showers in the coastal belt but over the remainder of the Union practically absolute drought prevailed. Grazing has consequently dried up and in many areas, particularly in the Orange Free State, veld is bare and supplementary feed scarce. Stock, especially cattle, have fallen off in conditions and numerous losses were experienced amongst young lambs through exposure. On the whole the lamb crop has not been a success and even in those districts where more favourable conditions have prevailed it is feared that the tendency to overstock may result in losses should a period of drought be experienced.

Despite the drought grazing is still plentiful and stock in good condition in Bechuanaland, Natal and some of the bushveld areas of the Transvaal.

LATEST INFORMATION

Argentina (Telegram 22 September). — The sowings have been finished. Crop conditions of wheat and flax are on the whole normal. In the northern part of the province of Santa Fé and in the province of Entre Rios, grave damage has been caused by locusts but the crop condition is judged to be normal in the southern part of the province of Santa Fé and in the province of Cordoba and good in the province of Buenos Aires and the Central Pampa. The crop conditions of barley and oats are good.

Brazil: Crop condition and prospects of cacao in August were reported to be normal; weather conditions were favourable. Cacao entries during the month were heavy, the total transported being considerably above the average for the month of August.

Rail entries were as follows:—

	August 1932	May- August 1932 (Thousand lbs.)	August 1931	May- August 1931
Ilheus Zone	16,650	29,100	5,400	20,500
Rio de Contas Zone	1,850	4,000	350	1,100
TOTAL	18,500	33,100	5,750	21,600

Formosa: On 1 September the growing condition of rice of the second crop was average; slight damage from insect pest attacks was reported. On the same date the growing condition of the cane to be cut from this autumn to the next spring was mediocre and the germination and growth of the cane under planting were average.

Japan: During August the weather was favourable to the *tea* and *rice* crops, condition of which on September 1 was fairly good. The crop condition of *tobacco* on September 1 was average: area this year is 84,000 acres, showing a decrease of 6.9 % on that of last year (90,200) and on the average of the five years ending 1930; production of tobacco is estimated at 1,384,500 centals with a decrease of 11.1 % on the 1931 production (1,557,600) and of 3.3 % in the average 1926-1930 (1,431,400).

TRADE

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Wheat. — Thousand centals (1 cental = 100 lb.)										
<i>Exporting Countries:</i>										
Bulgaria	159	505	0	0	5,688	3,234	0	0	—	—
Hungary	108	26	0	0	7,912	5,247	0	2	—	—
Lithuania	0	2	0	0	20	545	0	0	—	—
Poland	183	128	4	0	1,598	1,847	346	49	—	—
Rumania	68	201	0	0	21,202	9,054	7	9	—	—
U. S. S. R.	—	—	—	—	1) 37,426	1) 50,067	—	—	—	—
Yugoslavia	112	403	0	0	8,796	3,247	0	79	—	—
Canada	11,773	7,203	4	13	109,685	137,150	75	0	—	—
United States	2,011	7,639	615	985	52,805	46,306	7,361	11,616	—	—
Argentina	1,836	4,409	—	—	82,036	71,725	—	—	—	—
Chile	—	—	—	—	9	428	2) 0	2) 0	—	—
Turkey	—	—	—	—	2) 908	2) 251	2) 0	2) 7	—	—
Algeria	—	—	—	—	3) 3,292	3) 6,532	3) 1,257	3) 743	—	—
Tunis	1,453	955	9	13	5,337	3,704	401	542	—	—
Australia	3,706	6,438	0	0	73,793	76,505	40	0	—	—
<i>Importing Countries:</i>										
Germany	4	0	3,329	2,593	7,313	265	21,006	18,805	—	—
Austria	0	0	556	679	0	86	6,418	5,315	—	—
Belgium	172	503	2,727	3,761	3,587	2,079	31,478	31,184	—	—
Denmark	0	2	518	397	9	46	8,719	4,874	—	—
Spain	0	0	1,526	0	0	4	3,049	0	—	—
Estonia	0	0	0	31	0	0	256	370	—	—
Irish Free State	0	0	434	516	13	18	6,369	6,435	—	—
Finland	0	0	53	11	0	0	428	90	—	—
France	0	0	5,673	8,146	9	966	53,140	46,597	—	—
Gr. Brit. and N. Irel.	66	44	11,188	13,415	1,206	683	137,664	124,551	—	—
Greece	0	0	919	1,065	0	0	14,116	14,233	—	—
Italy	0	0	1,900	1,984	18	22	22,560	50,116	—	—
Latvia	0	0	152	51	0	0	575	1,090	—	—
Norway	0	0	152	229	0	0	3,294	3,126	—	—
Netherlands	2	9	1,451	1,001	110	683	16,817	16,563	—	—
Portugal	—	—	739	284	—	—	1,393	1,316	—	—
Sweden	0	0	287	148	9	31	4,054	2,855	—	—
Switzerland	2	0	1,023	1,019	18	2	12,683	11,096	—	—
Czechoslovakia	0	0	1,065	694	4	4	13,199	7,079	—	—
India	4	126	0	509	183	2,251	179	6,687	—	—
Japan	—	—	—	—	—	—	3) 13,651	3) 12,425	—	—
Syria and Lebanon	—	—	—	—	—	—	291	37	—	—
Egypt	—	—	—	—	2) 498	2) 134	2) 913	1,014	—	—
Union of South Africa	—	—	—	—	2) 0	2) 0	2) 999	1,508	—	—
New Zealand	—	—	—	—	3) 0	3) 0	3) 93	126	—	—
Totals	21,659	28,593	34,324	37,544	423,486	423,118	382,791	380,482		
Rye. — Thousand centals (1 cental = 100 lb.)										
<i>Exporting Countries:</i>										
Germany	0	0	2,022	29	2,046	1,213	12,103	690	—	—
Bulgaria	2	44	0	0	990	1,413	0	0	—	—
Hungary	66	33	0	0	1,486	1,579	0	0	—	—
Lithuania	7	0	0	0	9	163	2	2	—	—
Poland	298	121	0	2	2,513	5,880	123	0	—	—
Rumania	15	35	0	0	1,676	1,299	0	0	—	—
U. S. S. R.	—	—	—	—	1) 17,910	1) 9,262	—	—	—	—
Canada	1,389	68	0	0	5,066	1,171	0	0	—	—
United States	143	0	—	—	622	90	—	—	—	—
Argentina	238	121	—	—	5,296	992	—	—	—	—
Turkey	—	—	—	—	2) 675	2) 353	2) 0	2) 0	—	—
Algeria	—	—	—	—	3) 13	3) 35	3) 0	3) 0	—	—
<i>Importing Countries:</i>										
Austria	0	0	115	90	0	9	1,728	2,205	—	—
Belgium	68	4	423	412	639	126	2,709	3,739	—	—
Denmark	0	0	582	335	0	4	4,731	7,103	—	—
Estonia	0	0	0	11	0	0	13	194	—	—
Finland	0	2	190	130	0	2	1,202	1,570	—	—
France	0	0	163	44	0	0	1,737	1,378	—	—
Italy	0	0	7	4	0	0	157	597	—	—
Latvia	0	0	0	9	0	0	99	265	—	—
Norway	0	0	115	223	0	0	3,415	3,023	—	—
Netherlands	7	64	573	313	331	791	4,418	6,180	—	—
Sweden	0	0	146	26	26	4	1,345	520	—	—
Switzerland	0	0	22	13	0	0	108	174	—	—
Czechoslovakia	0	0	112	467	7	476	5,124	844	—	—
Totals	2,233	492	4,470	2,108	39,305	24,862	39,014	28,484		

1) 2) 3) See notes page 638.

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Wheat flour. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Germany	0	2	51	44	64	128	229	238	—	—
Belgium	7	22	4	11	73	216	51	231	—	—
Bulgaria	15	20	0	0	752	220	0	0	—	—
Spain	2	7	0	0	18	75	0	0	—	—
France	119	814	29	37	4,528	7,423	262	569	—	—
Hungary	11	66	0	0	2,130	4,008	0	0	—	—
Italy	181	84	15	15	2,222	1,191	287	223	—	—
Latvia	0	0	0	0	0	73	0	0	—	—
Lithuania	2	2	0	0	26	24	0	0	—	—
Poland	18	22	0	2	511	615	4	24	—	—
Rumania	2	2	0	0	855	421	0	0	—	—
Yugoslavia	7	0	0	0	104	88	0	2	—	—
Canada	875	915	2	2	10,551	13,113	40	49	—	—
United States	681	1,969	0	0	15,091	23,100	0	2	—	—
Argentina	79	170	—	—	1,510	2,055	—	—	—	—
Chile . . . . .	...	...	...	...	20	99	0	0	—	—
India	33	53	0	0	636	1,032	0	2	—	—
Turkey . . . . .	...	...	...	...	11	29	4	11	—	—
Japan . . . . .	...	...	...	...	2,641	3,148	101	192	—	—
Algeria . . . . .	...	...	...	...	99	243	53	44	—	—
Tunis	18	13	2	0	146	251	20	11	—	—
Australia	928	717	0	0	13,955	10,404	0	0	—	—
<i>Importing Countries:</i>										
Austria	0	2	22	22	7	13	1,279	3,100	—	—
Denmark	2	2	62	106	13	24	1,290	1,572	—	—
Estonia	0	0	0	2	11	2	15	88	—	—
Irish Free State	0	2	355	323	26	40	4,045	3,691	—	—
Finland	0	0	132	170	0	0	1,596	2,150	—	—
Gr. Brit. and N. Irel.	492	399	708	1,060	5,628	4,608	11,224	12,816	—	—
Greece	0	0	2	9	0	0	66	165	—	—
Norway	0	0	93	117	11	2	1,358	1,396	—	—
Netherlands	2	7	29	346	71	115	723	3,845	—	—
Portugal	—	—	37	20	—	—	201	218	—	—
Sweden	0	0	2	4	0	2	37	71	—	—
Czechoslovakia	0	2	123	22	9	11	1,182	2,432	—	—
Ceylon	—	—	22	40	—	—	401	445	—	—
Java and Madura . . . . .	—	—	...	...	—	—	1,054	908	—	—
Indo-China . . . . .	—	—	...	...	—	—	364	395	—	—
Syria and Lebanon . . . . .	—	—	...	...	90	18	366	152	—	—
Egypt . . . . .	—	—	...	...	0	0	2,414	3,265	—	—
Union of South Africa . . . . .	—	—	...	...	2	11	15	265	—	—
New Zealand . . . . .	—	—	...	...	2	3	192	192	—	—
Totals	3,474	5,292	1,690	2,357	62,053	72,804	28,873	38,766		
Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	2	24	0	0	406	1,598	0	0	—	—
Spain	4	11	0	0	15	152	0	0	—	—
Hungary	2	0	0	0	55	580	7	4	—	—
Lithuania	0	0	0	0	0	15	0	0	—	—
Poland	7	7	0	0	3,146	2,798	0	0	—	—
Rumania	419	227	0	0	15,911	33,797	0	4	—	—
Czechoslovakia	137	2	0	0	2,112	3,003	2	4	—	—
U. S. S. R. . . . .	...	...	—	—	15,115	17,249	—	—	—	—
Canada	811	1,274	0	0	6,499	9,240	0	0	—	—
United States	384	300	—	—	2,524	4,978	—	—	—	—
Argentina	40	238	—	—	6,493	5,701	—	—	—	—
Chile . . . . .	...	...	...	...	487	459	0	0	—	—
India . . . . .	...	194	0	0	666	306	0	2	—	—
Syria and Lebanon . . . . .	...	...	...	...	277	860	101	0	—	—
Turkey . . . . .	...	...	...	...	2,875	406	0	0	—	—
Algeria . . . . .	...	...	...	...	615	1,440	2,233	287	—	—
Egypt . . . . .	...	...	...	...	2	273	2	110	—	—
Tunis	353	22	2	2	820	220	556	390	—	—
Australia	20	42	0	0	1,614	1,552	0	0	—	—
<i>Importing Countries:</i>										
Germany	0	0	774	3,565	18	62	14,837	18,440	—	—
Austria	0	0	79	68	0	0	2,050	2,077	—	—
Belgium	84	55	487	575	1,676	1,076	9,396	10,538	—	—
Denmark	0	2	401	1,005	470	1,232	3,331	15,005	—	—
Estonia	0	0	0	0	0	0	0	13	—	—
Irish Free State	0	0	172	168	26	20	483	454	—	—
France	0	0	611	496	15	22	9,482	7,721	—	—
Gr. Brit. and N. Irel.	20	0	467	1,259	31	68	14,039	18,691	—	—
Greece	0	0	2	0	0	0	172	79	—	—
Italy	0	0	11	22	0	0	800	756	—	—
Latvia	0	0	0	7	0	0	7	4	—	—
Norway	0	0	9	49	0	0	794	1,078	—	—
Netherlands	2	9	600	1,100	262	591	9,112	14,716	—	—
Switzerland	0	0	148	223	2	0	2,989	2,829	—	—
Yugoslavia	2	4	0	0	13	29	37	130	—	—
Totals	2,287	2,411	3,763	8,539	62,245	87,546	70,698	93,544		

1) 2) 3) See notes page 638.

COUNTRIES	JULY				TWELVE MONTHS (August 1-JULY 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Irish Free State . . .	2	2	4	77	73	254	220	452	—	—
Hungary	0	0	0	24	7	13	2	141	—	—
Lithuania	4	0	0	0	20	84	0	0	—	—
Poland	7	4	0	0	62	137	0	0	—	—
Rumania	35	4	0	0	295	1,779	0	0	—	—
Czechoslovakia . . .	104	0	0	123	884	710	57	143	—	—
U. S. S. R.	—	—	—	—	—	—	—	—	—	—
Yugoslavia	0	0	—	2	2	2	0	86	—	—
Canada	174	425	40	0	4,628	2,659	655	234	—	—
United States	115	11	0	0	891	130	22	205	—	—
Argentina	855	1,135	—	—	16,275	15,062	—	—	—	—
Chile	—	—	—	—	212	2,030	—	0	—	—
Algeria	—	—	—	—	262	1,235	368	152	—	—
Tunis	40	37	0	0	212	545	0	9	—	—
Australia	11	2	0	0	108	73	2	2	—	—
<i>Importing Countries:</i>										
Germany	0	0	9	143	9	220	223	1,003	—	—
Austria	0	0	110	238	0	2	1,462	2,227	—	—
Belgium	4	0	163	337	37	2	1,501	3,494	—	—
Denmark	0	0	11	119	66	20	474	1,270	—	—
Estonia	0	0	0	0	0	0	7	159	—	—
Finland	0	0	9	68	20	7	55	260	—	—
France	0	0	507	190	7	20	3,214	2,205	—	—
Gr. Brit. and N. Irel.	2	11	604	1,325	203	397	8,494	10,697	—	—
Italy	0	0	456	64	0	0	4,074	3,741	—	—
Latvia	0	0	0	0	0	4	7	60	—	—
Norway	0	0	0	0	2	4	273	4	—	—
Netherlands	0	9	130	366	44	375	2,381	3,607	—	—
Sweden	31	0	60	218	181	40	1,157	1,334	—	—
Switzerland	0	0	362	317	2	2	5,033	4,564	—	—
Totals	1,384	1,640	2,465	3,611	24,502	25,806	29,681	36,049	—	—

Maize. — Thousand centals (1 cental = 100 lb.).

COUNTRIES	JULY				TWELVE MONTHS (August 1-JULY 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	110	130	0	0	2,434	3,287	0	0	3,477	0
Rumania	2,873	1,246	0	0	28,559	15,062	0	2	18,638	2
Yugoslavia	13	240	0	2	1,548	6,255	24	9	6,420	24
United States	190	276	9	15	1,530	1,058	190	498	1,314	520
Argentina	16,641	24,169	—	—	141,376	131,057	—	—	198,983	—
Brazil	—	—	—	—	0	18	—	—	18	—
Java and Madura . . .	—	—	—	—	2,167	1,920	—	—	2,407	—
Indo-China	—	—	—	—	1,493	1,612	—	—	2,584	—
Syria and Lebanon . .	—	—	—	—	7	150	31	49	159	49
Turkey	—	—	—	—	240	66	—	0	212	0
Egypt	—	—	—	—	9	4	37	86	4	298
Union of South Africa	0	2	0	0	1,903	1,034	0	0	3,298	0
<i>Importing Countries:</i>										
Germany	0	0	1,779	1,426	0	0	13,680	6,689	0	10,007
Austria	0	0	1,027	606	0	2	6,162	4,012	2	6,270
Belgium	123	79	1,473	1,631	1,171	664	14,138	11,565	955	17,075
Denmark	0	0	2,478	1,825	0	0	17,716	8,109	0	13,539
Spain	0	0	902	269	0	0	6,054	2,749	0	3,666
Irish Free State . . .	0	0	1,228	1,285	0	26	10,137	8,087	26	12,044
Finland	0	0	33	44	0	0	335	172	0	335
France	2	0	2,167	1,995	24	37	17,556	15,100	40	23,755
Gr. Brit. and N. Irel.	333	247	4,557	4,198	2,410	1,744	46,560	35,453	2,407	53,281
Greece	0	0	37	75	0	0	3,338	320	0	373
Hungary	0	2	214	280	62	236	653	1,986	240	2,337
Italy	0	0	1,673	1,570	4	7	13,481	11,144	7	17,447
Norway	0	0	201	172	0	0	2,915	2,632	0	3,977
Netherlands	18	13	2,608	2,723	187	231	28,742	22,137	273	32,441
Poland	0	0	18	84	0	0	95	419	0	496
Portugal	—	—	161	51	—	—	974	1,184	—	1,605
Sweden	0	0	591	745	—	0	4,592	4,557	0	7,311
Switzerland	0	0	227	243	2	2	2,511	2,154	2	3,611
Czechoslovakia . . .	0	0	897	1,285	0	0	9,105	8,708	2	13,115
Canada	2	0	229	351	—	7	3,128	3,206	9	4,760
Japan	—	—	—	—	—	—	1,508	1,034	—	1,689
Tunis	0	0	0	0	0	9	322	267	9	298
Totals	20,305	26,402	22,509	20,875	185,135	164,468	203,986	152,328	241,486	230,345

2) 3) See notes page 638.

COUNTRIES	JULY				SEVEN MONTHS (January 1-July 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	46	57	0	0	505	437	0	0	833	0
Italy	190	143	7	7	2,090	1,825	31	33	3,093	55
United States	234	104	4	—	1,795	1,664	128	254	2,771	328
Brazil	—	—	—	—	419	1,045	—	—	1,993	—
India	2,837	3,788	29	13	35,155	32,778	419	304	48,442	692
Indo-China	—	—	—	—	14,420	11,327	—	—	21,153	—
Siam	2,273	1,905	—	—	19,249	15,038	—	—	25,029	—
Egypt	—	—	—	—	150	478	697	86	686	836
<i>Importing Countries:</i>										
Germany	137	150	1,091	1,091	635	730	4,519	4,592	1,373	8,962
Austria	0	0	64	49	0	0	324	362	0	756
Belgium	24	18	128	190	137	99	710	763	190	1,349
Denmark	0	0	9	11	0	0	60	90	0	157
Estonia	—	—	0	4	—	—	11	18	—	33
Irish Free State	0	0	9	4	0	0	33	35	0	53
France	42	55	747	463	485	538	4,539	3,236	937	6,792
Gr. Brit. and N. Irel.	11	20	181	223	121	137	1,581	1,579	271	2,690
Greece	—	—	22	57	—	—	322	331	—	540
Hungary	0	0	55	55	0	0	236	304	2	481
Latvia	0	0	2	22	0	0	9	60	0	82
Lithuania	0	0	2	2	0	0	9	15	0	22
Norway	0	0	4	13	0	0	42	79	0	117
Netherlands	143	328	99	772	968	1,565	1,773	3,790	2,480	5,009
Poland	26	68	249	529	214	183	796	974	606	1,726
Portugal	—	—	62	49	—	—	589	348	—	613
Sweden	—	—	31	0	—	—	90	123	—	123
Switzerland	0	0	31	35	0	0	227	203	0	454
Czechoslovakia	0	0	108	161	0	0	626	600	0	1,127
Yugoslavia	0	0	29	42	2	2	269	483	4	511
Canada	0	0	42	53	9	0	483	545	0	710
Chile	—	—	—	—	—	—	134	293	—	441
Ceylon	0	0	776	913	2	13	6,409	5,988	18	10,196
Java and Madura	—	—	—	—	22	84	2,110	3,393	232	6,327
Japan	—	—	—	—	51	2,247	1,197	1,043	4,195	2,773
Syria and Lebanon	—	—	—	—	0	0	183	154	0	322
Turkey	—	—	—	—	0	0	101	86	0	183
Algeria	—	—	—	—	2	2	183	64	2	179
Tunis	0	0	2	2	0	0	29	20	0	31
Union of South Africa	—	—	—	—	0	0	425	589	0	1,025
Australia	4	7	2	2	55	86	31	20	161	29
New Zealand	—	—	—	—	0	0	35	33	0	73
Totals	5,967	6,643	3,752	4,769	76,486	70,278	29,217	30,921	114,471	55,797
Linseed. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Estonia	0	0	0	0	2	4	0	0	4	0
Lithuania	4	7	0	0	101	128	0	0	247	0
Argentina	3,971	4,193	—	—	28,012	26,548	—	—	41,454	—
India	130	256	0	0	1,012	1,484	0	0	2,515	0
Tunis	4	2	0	0	9	2	0	0	4	0
<i>Importing Countries:</i>										
Germany	2	2	917	511	9	9	5,271	5,088	13	7,507
Belgium	2	24	243	201	112	64	1,997	2,335	205	3,702
Denmark	—	—	31	46	—	—	264	273	—	417
Spain	—	—	68	35	—	—	331	282	—	465
Finland	0	0	0	4	0	0	29	44	0	68
France	0	0	238	298	4	13	2,886	3,177	18	5,814
Gr. Brit. and N. Irel.	0	0	703	562	2	4	4,634	4,718	4	7,599
Greece	0	0	7	9	0	0	40	51	0	95
Hungary	0	2	0	0	7	11	0	2	42	2
Italy	0	0	101	75	0	0	820	778	0	1,351
Latvia	2	4	2	7	20	55	35	55	106	90
Norway	0	0	11	22	—	0	194	234	0	289
Netherlands	2	2	287	710	68	44	5,591	6,034	49	9,253
Poland	0	0	35	31	2	4	108	256	7	273
Sweden	—	—	79	117	—	—	650	741	—	1,056
Czechoslovakia	0	0	55	51	2	2	373	320	7	582
Yugoslavia	0	0	7	26	0	0	60	101	0	126
Canada	0	148	0	0	2	448	256	2	584	194
United States	—	—	57	944	—	—	3,115	4,354	—	8,109
Japan	—	—	—	—	—	—	108	90	—	185
Australia	0	0	11	35	0	0	247	234	0	291
Totals	4,117	4,640	2,852	3,684	29,364	28,820	27,029	29,169	45,259	47,468

2) 3) See notes page 638.

COUNTRIES	JULY				SEVEN MONTHS (January 1-July 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Butter. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Austria	71	13	22	406	370	1,182	747	1,457	2,862	1,565
Denmark	32,922	36,346	108	46	214,480	226,925	897	1,019	378,429	1,596
Estonia	4,299	4,676	0	0	15,964	17,112	0	0	31,844	0
Irish Free State	7,529	8,843	302	26	18,997	21,416	2,584	3,172	42,307	3,325
Finland	2,346	4,389	0	0	20,955	25,823	0	0	38,367	0
Hungary	384	108	0	4	2,105	809	0	117	4,065	117
Latvia	6,149	6,453	0	2	22,359	23,398	0	20	41,313	24
Lithuania	3,188	3,556	0	0	11,799	10,875	0	0	19,191	0
Netherlands	2,487	6,424	163	811	21,008	46,125	8,523	3,527	72,660	8,887
Poland	276	4,852	68	4	2,540	16,757	176	24	27,470	31
Sweden	2,778	4,550	4	2	17,974	27,719	18	7	43,162	40
U. S. S. R.	—	—	—	—	—	—	—	—	68,024	—
Argentina	1,984	101	—	—	35,667	28,091	—	—	51,132	—
India	7	13	—	35	148	198	254	201	364	344
Syria and Lebanon	—	—	—	—	168	996	1,052	121	1,817	344
Australia	11,200	8,644	—	0	115,803	102,626	—	0	208,924	0
New Zealand	14,901	14,637	—	—	127,423	128,367	—	—	220,814	—
<i>Importing Countries:</i>										
Germany	7	22	8,448	19,939	150	165	86,503	122,527	269	220,950
Belgium	227	276	1,971	3,915	1,433	1,545	31,337	22,723	2,756	41,562
Spain	2	11	0	7	24	62	24	40	88	121
France	955	911	306	1,836	4,354	5,505	15,322	30,785	11,036	40,836
Gr. Brit. and N. Irel.	750	1,191	90,037	90,529	30,170	23,023	557,339	536,986	40,228	903,967
Greece	—	—	40	212	—	774	981	—	—	2,061
Italy	40	55	37	348	670	1,100	3,305	4,524	1,290	6,188
Norway	55	123	4	95	1,841	1,219	68	174	1,629	379
Switzerland	0	0	97	1,499	2	4	6,885	13,713	20	23,358
Czechoslovakia	0	0	77	432	2	302	2,057	2,632	661	4,107
Canada	1,629	2,145	0	2	2,372	4,511	185	2,815	10,681	2,822
United States	157	183	42	88	922	1,371	728	818	2,008	1,881
Ceylon	—	—	55	35	—	—	377	357	—	642
Java and Madura	—	—	—	—	—	—	4,819	4,255	—	8,514
Japan	—	—	—	—	—	—	66	117	—	231
Algeria	—	—	—	—	22	26	1,702	1,854	73	4,389
Egypt	—	—	—	—	333	15	421	1,199	77	2,041
Tunis	0	0	77	44	—	—	697	520	9	930
Totals	94,343	108,522	101,878	120,317	670,101	717,269	726,860	756,685	1,323,570	1,281,252
Cheese. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Denmark	1,545	730	7	44	7,432	5,265	95	355	9,383	604
Finland	646	395	0	0	4,400	3,662	11	13	5,776	33
Italy	2,672	4,771	593	717	35,750	49,000	4,841	5,855	89,032	10,119
Lithuania	141	269	0	2	95	1,329	2	7	2,346	11
Norway	287	194	9	33	1,929	1,193	132	333	2,840	562
Netherlands	14,844	19,656	73	106	95,340	110,849	600	710	190,460	1,345
Poland	26	289	40	57	527	1,702	333	465	2,884	761
Switzerland	3,594	4,991	291	419	23,967	33,700	2,912	3,512	54,307	8,470
Czechoslovakia	342	520	280	437	3,874	4,612	1,695	1,993	10,981	3,779
Yugoslavia	265	368	7	22	990	1,898	99	148	4,198	243
Canada	15,995	11,497	71	141	25,069	19,310	611	820	84,790	1,446
Australia	152	229	4	0	3,230	3,457	9	18	7,405	24
New Zealand	8,100	7,399	0	0	112,418	119,354	0	4	181,703	4
<i>Importing Countries:</i>										
Germany	220	602	10,342	12,068	2,247	3,585	53,348	70,178	7,372	120,404
Austria	410	571	251	536	1,616	3,455	2,564	3,821	6,232	5,781
Belgium	50	88	3,477	4,632	335	470	25,071	27,758	814	49,600
Spain	26	20	227	254	1,122	168	1,222	2,006	236	3,867
Irish Free State	4	13	254	26	57	1,243	1,426	194	2,687	194
France	1,543	2,208	3,111	6,852	16,881	19,410	28,116	45,810	33,239	82,810
Gr. Brit. and N. Irel.	525	717	31,965	26,696	4,068	4,246	195,998	189,764	7,346	323,691
Greece	31	9	73	218	93	115	1,208	2,017	190	3,960
Hungary	2	7	0	4	26	75	11	168	110	203
Portugal	—	—	29	79	—	—	247	348	—	842
Sweden	—	—	33	66	—	—	483	844	—	1,691
United States	126	157	3,342	3,413	944	1,116	28,830	33,656	1,865	61,992
India	0	0	53	46	2	2	476	478	7	886
Java and Madura	—	—	—	—	—	—	685	741	—	1,658
Syria and Lebanon	—	—	—	—	20	66	452	357	86	708
Algeria	—	—	—	—	75	93	3,871	3,803	172	11,182
Egypt	—	—	—	—	119	33	2,167	3,902	73	7,304
Tunis	2	2	128	57	9	22	1,164	1,091	24	2,033
Totals	61,549	55,699	54,637	57,153	342,351	388,244	363,397	402,404	704,265	708,100

COUNTRIES	JULY				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Cotton. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
United States	2,432	1,433	42	46	46,787	36,392	620	538	—	—
Argentina	126	97	—	—	613	505	—	—	—	—
Brazil	—	—	—	—	181	505	—	—	—	—
India	401	849	106	134	7,088	14,881	2,249	1,876	—	—
Egypt	—	—	—	—	7,185	5,959	0	0	—	—
<i>Importing Countries:</i>										
Germany	119	152	463	562	1,640	1,706	8,327	8,442	—	—
Austria	0	0	33	33	0	0	551	467	—	—
Belgium	26	26	64	139	348	201	1,349	1,713	—	—
Denmark	—	—	9	9	—	—	141	141	—	—
Spain	0	2	154	220	24	24	2,337	2,253	—	—
Estonia	0	0	4	7	0	0	75	84	—	—
Finland	0	0	9	11	0	0	159	172	—	—
France	31	53	452	271	494	549	4,264	8,137	—	—
Gr. Brit. and N. Irel.	46	53	683	542	485	481	12,452	10,959	—	—
Greece	0	0	11	33	0	0	192	291	—	—
Hungary	0	0	15	22	0	0	333	291	—	—
Italy	0	0	243	300	0	0	4,039	3,821	—	—
Latvia	0	0	4	2	0	0	51	62	—	—
Norway	0	0	2	0	0	0	44	46	—	—
Netherlands	0	0	37	82	7	7	860	1,043	—	—
Poland	2	2	106	95	22	24	1,074	1,444	—	—
Portugal	—	—	33	29	—	—	434	333	—	—
Sweden	—	—	35	49	—	—	564	467	—	—
Switzerland	0	7	31	46	4	7	505	608	—	—
Czechoslovakia	11	11	108	168	137	154	2,002	2,368	—	—
Yugoslavia	—	0	9	15	0	0	201	185	—	—
Canada	—	—	37	44	—	—	974	1,025	—	—
Japan	—	—	—	—	1,041	406	14,868	12,028	—	—
Algeria	—	—	—	—	—	—	—	—	—	—
Totals	3,194	2,685	2,690	2,859	66,060	61,825	58,669	58,725		

Wool. — (Thousand lb.).

COUNTRIES	ELEVEN MONTHS (September 1-July 31)				TWELVE MONTHS (Sept. 1-August 31)			
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31
<i>Exporting Countries:</i>								
Irish Free State	1,237	1,080	143	49	9,015	6,651	818	683
Hungary	403	2,363	139	88	1,843	6,288	1,175	1,561
Argentina (a) (b)	9,407	11,592	—	—	262,761	293,079	—	—
Chile	—	423	—	—	3,915	—	—	—
India	679	2,143	467	842	24,158	20,369	—	—
Syria and Lebanon	—	—	—	—	31,284	35,810	4,546	4,387
Algeria	—	—	—	—	2,959	9,035	694	2,747
Egypt	—	—	—	—	4,592	11,947	893	648
Un. of S. Africa (a) (b)	7,161	1,237	0	0	1,127	2,800	2	11
Australia (a) (b)	439	245	0	0	292,305	269,016	0	33
New Zealand (a) (b)	26,246	34,311	9	421	4,780	4,667	1,239	500
—	5,809	4,863	0	0	755,774	738,663	1,917	2,326
—	—	—	—	—	54,205	41,509	11	53
—	—	—	—	—	173,736	165,446	2	0
—	—	—	—	—	33,662	30,688	4	0
<i>Importing Countries:</i>								
Germany (a) (b)	406	1,343	14,363	23,949	9,588	9,711	224,830	313,512
Austria (a) (b)	613	1,336	2,489	2,434	9,013	11,766	28,691	28,550
Belgium (a) (b)	2,573	840	6,986	12,145	82	220	10,584	13,940
Denmark	1,687	1,737	159	157	16,973	9,145	107,489	128,861
Spain	4	11	346	357	20,646	19,906	2,698	3,563
Finland	73	227	1,418	855	150	84	4,118	3,254
France	0	0	243	146	84	53	2,511	2,235
Gr. Brit. and N. Irel.	3,810	4,037	31,617	33,014	42,417	48,334	373,041	459,355
Greece	19,339	25,278	41,182	43,537	291,172	293,048	857,381	801,976
Italy (a) (b)	20	11	104	238	165	315	1,997	2,762
Norway	108	207	8,682	5,509	1,193	2,004	138,365	91,499
Netherlands (a) (b)	104	635	626	635	1,446	4,427	13,345	8,455
Poland	42	42	137	130	705	631	2,167	1,521
Sweden	159	278	511	229	1,755	2,202	6,402	8,450
Switzerland	66	18	785	505	670	353	7,264	6,347
Czechoslovakia	71	190	1,484	2,586	1,605	2,405	24,994	36,099
Yugoslavia	—	29	902	1,830	—	—	16,830	13,898
Canada	97	117	2,138	4,374	1,843	1,429	18,620	7,983
United States	40	0	101	229	137	24	30,779	34,333
Japan	220	251	35	692	4,456	1,594	5,842	11,171
Tunis	1,340	150	849	12,987	3,349	1,916	82,085	143,502
—	15	88	66	157	77	13	165,546	93,282
—	—	—	—	—	159	439	761	461
Totals	82,174	95,084	118,380	150,573	2,062,596	2,053,901	2,149,257	2,255,436

a) = Wool, greasy; b) = Wool, scoured. — 2) 3) See notes page 638.

COUNTRIES	JULY		TWELVE MONTHS (July 1-June 30)		COUNTRIES	JULY		TWELVE MONTHS (July 1-June 30)		TWELVE MONTHS (July 1-June 30)
	1932	1931	1931-32	1930-31		1932	1931	1931-32	1930-31	
Coffee. — (Thousand lb.).										
EXPORTS.						EXPORTS.				
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>				
Brazil . . . . .	...	...	2,022,263	2,448,921	—	Ceylon	19,595	20,770	245,982	247,397
India	44	110	17,926	23,490	—	India	34,297	30,157	342,946	347,401
Java and Madura .	...	...	51,725	38,105	—	Java and Madura .	...	...	163,312	158,936
						Japan . . . . .	...	...	21,832	21,795
<i>Importing Countries:</i>						<i>Importing Countries:</i>				
Germany	254	381	1,649	1,345	—	Belgium	2	2	22	31
Belgium	84	714	9,643	5,090	—	Irish Free State .	0	7	258	185
France	0	2	15	60	—	France	0	4	57	35
Netherlands . . .	1,014	1,074	15,265	19,061	—	Gr. Brit. and N. Ire.	7,436	7,476	77,887	87,052
Portugal	121	15	1,270	553	—	Netherlands . . .	9	11	134	115
Switzerland . . .	26	75	613	399	—	United States . .	22	24	474	476
Canada	4	7	42	55	—	Syria and Lebanon	...	...	20	18
United States . .	1,343	1,510	22,814	24,293	—	Algeria . . . . .	...	...	46	20
Ceylon	0	2	11	227	—	Union of S. Africa.	...	...	121	66
Syria and Lebanon .	...	...	46	62	—	Australia	51	40	549	851
Australia	2	7	53	53	—	New Zealand . . .	...	...	73	101
Totals	—	—	—	—	—	Totals	61,412	58,491	853,713	864,479
IMPORTS.						IMPORTS.				
<i>Importing Countries:</i>						<i>Importing Countries:</i>				
Germany	26,694	25,574	307,608	349,956	—	Germany	882	922	10,494	12,741
Austria	2,421	1,709	16,998	23,268	—	Austria	152	174	1,131	1,409
Belgium	8,547	11,292	114,672	123,457	—	Belgium	29	46	661	639
Bulgaria	46	130	1,658	1,660	—	Denmark	75	99	1,380	1,296
Denmark	1,938	6,378	66,439	63,220	—	Spain	40	44	322	282
Spain	3,708	3,880	53,912	68,795	—	Estonia	2	4	172	146
Estonia	2	15	298	309	—	Irish Free State .	1,603	1,490	25,122	24,346
Irish Free State .	15	44	522	525	—	Finland	13	20	249	260
Finland	2,476	3,122	32,481	40,442	—	France	227	185	3,419	3,536
France	32,000	38,453	426,285	406,168	—	Gr. Britain and N.				
Gr. Britain and N.					—	Ireland	40,675	43,279	550,364	541,616
Ireland	3,347	3,649	37,516	37,858	—	Greece	18	29	699	644
Greece	717	1,056	13,010	12,959	—	Hungary	31	53	562	650
Hungary	547	699	6,041	7,568	—	Italy	9	13	333	326
Italy	6,806	6,949	93,393	98,448	—	Latvia	9	11	128	168
Latvia	9	22	375	353	—	Lithuania	7	18	119	179
Lithuania	29	31	445	478	—	Norway	29	22	386	388
Norway	2,388	4,343	38,189	37,690	—	Netherlands . . .	2,352	2,657	30,836	31,024
Netherlands . . .	6,230	8,523	103,379	100,483	—	Poland	271	355	4,317	4,614
Poland	1,299	1,700	17,185	17,589	—	Portugal	37	66	648	597
Portugal	747	1,105	10,657	11,413	—	Sweden	49	51	858	928
Sweden	6,634	9,165	107,586	100,829	—	Switzerland . . .	134	152	1,792	1,731
Switzerland . . .	2,493	3,402	34,286	31,608	—	Czechoslovakia .	57	82	1,737	1,473
Czechoslovakia .	2,097	2,443	32,386	29,026	—	Yugoslavia . . .	24	37	622	628
Yugoslavia . . .	1,138	1,678	17,434	20,862	—	Canada	1,376	1,151	39,031	43,147
Canada	2,321	2,264	31,963	33,689	—	United States . .	6,279	6,579	90,460	87,151
United States . .	88,538	145,265	1,628,986	1,728,593	—	Chile . . . . .	...	...	5,172	5,362
Chile . . . . .	...	...	9,308	10,516	—	Syria and Lebanon	...	...	586	351
Ceylon	132	465	3,572	3,148	—	Turkey . . . . .	...	...	1,504	2,138
Japan . . . . .	...	3)	5,487	4,004	—	Algeria . . . . .	...	3)	2,335	2,672
Syria and Lebanon .	...	...	2,324	2,732	—	Egypt . . . . .	...	...	13,999	13,616
Turkey . . . . .	...	...	8,841	12,853	—	Tunis	273	1,603	6,669	2,952
Algeria . . . . .	...	3)	28,019	28,266	—	Union of S. Africa.	...	...	12,683	13,298
Egypt . . . . .	...	...	15,862	14,857	—	Australia	4,076	3,309	44,899	46,441
Tunis	353	185	3,190	3,036	—	New Zealand . . .	...	...	9,775	10,549
Un. of S. Africa .	...	...	26,026	31,890	—					
Australia	141	185	3,510	2,619	—					
New Zealand . . .	...	3)	412	390	—					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>				
India	44	22	106	4,090	—	India	970	545	6,486	6,232
					—	Java and Madura .	...	2)	9,771	11,830
Totals	203,857	283,748	3,300,361	3,465,647	—	Totals	59,699	62,996	879,721	875,360

3) See notes page 638.

COUNTRIES	JULY		TEN MONTHS (Oct. 1-July 31)		TWELVE MONTHS (Oct. 1-Sept. 30)	COUNTRIES	JULY		TWELVE MONTHS (August 1-July 31)		TWELVE MONTHS (August 1-July 31)
	1932	1931	1931-32	1930-31	1930-31		1932	1931	1931-32	1930-31	1930-31
Cacao. — (Thousand lb.).						Total Wheat and Flour (*)					
EXPORTS.						a) NET EXPORTS.					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Grenada	441	564	9,013	9,418	9,905	Bulgaria	179	531	6,691	3,527	—
Dominican Republ.	3,849	13,620	34,308	48,760	61,328	Spain	4)	9	4)	104	—
Brazil . . . . .	...	...	a) 139,355	a) 95,624	146,469	Hungary	123	115	10,752	10,589	—
Ecuador	1,323	1,373	34,335	31,312	33,076	Lithuania	2	4	55	578	—
Trinidad	2,604	4,295	35,151	57,770	61,569	Poland	203	154	1,929	2,586	—
Venezuela	3,307	3,642	27,997	39,794	45,076	Rumania	71	203	22,335	9,608	—
Ceylon	143	635	8,812	7,791	8,360	U. S. S. R. . . . .	...	...	1) 37,426	1) 50,067	—
Java and Madura . . . . .	...	...	a) 1,484	a) 1,587	3,073	Yugoslavia	121	403	8,935	3,362	—
Cameroon	1,870	2,026	27,580	25,338	30,126	Canada	12,932	8,406	123,625	154,489	—
Ivory Coast	441	392	51,483	a) 42,479	43,363	United States	2,304	9,279	65,566	65,486	—
Gold Coast	17,132	14,154	430,871	466,621	496,374	Argentina	1,942	4,636	84,049	74,466	—
Nigeria	12,562	3,300	122,006	110,615	115,545	Chile . . . . .	...	...	2) 35	2) 560	—
St. Thomas and Prince Is.	2,004	1,967	21,473	20,981	24,879	India	49	4)	1,118	4)	—
Togoland	220	134	14,991	16,197	16,400	Turkey . . . . .	...	...	2) 917	2) 269	—
<i>Importing Countries:</i>						Algeria . . . . .	...	...	3) 2,097	3) 6,054	—
Germany	0	0	474	432	454	Tunis	1,464	959	5,104	3,481	—
Belgium	108	46	1,027	624	809	Australia	4,943	7,392	92,453	90,377	—
France	0	0	2	223	223						
Netherlands	664	542	5,525	9,328	10,679						
Czechoslovakia	0	0	0	18	18						
United States	271	873	6,221	7,083	8,521						
Australia	0	4	141	66	86						
Totals	46,939	47,567	972,149	992,061	1,106,333						
IMPORTS.						b) NET IMPORTS.					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	11,773	12,990	155,087	160,583	180,001	Germany	3,393	2,648	13,913	18,689	—
Austria	1,559	465	11,643	9,625	10,684	Austria	584	705	8,113	9,345	—
Belgium	1,144	2,050	19,765	23,162	25,532	Belgium	2,553	3,243	27,862	29,125	—
Bulgaria	53	86	1,206	736	774	Denmark	597	534	10,412	6,892	—
Denmark	547	485	7,214	7,110	7,685	Spain	1,523	5)	3,025	5)	—
Spain	811	1,486	20,527	21,676	22,472	Estonia	0	33	262	485	—
Estonia	4	40	441	379	478	Irish Free State	908	950	11,715	11,286	—
Irish Free State	49	15	979	1,636	1,786	Finland	229	238	2,555	2,956	—
Finland	13	13	146	190	220	France	5,551	7,112	47,444	36,493	—
France	8,638	5,785	79,126	76,181	90,116	Gr. Brit. and N. Irel.	11,411	14,253	143,918	134,811	—
Gr. Brit. and N. Irel.	9,526	6,499	118,082	113,807	141,747	Greece	922	1,076	14,204	14,454	—
Greece	20	161	2,610	2,039	2,480	Italy	1,680	1,894	19,961	48,804	—
Hungary	624	342	4,661	4,707	5,432	Latvia	152	51	575	935	—
Italy	858	1,232	12,820	14,546	16,619	Norway	276	386	5,090	4,985	—
Latvia	115	104	1,451	1,457	1,724	Netherlands	1,484	1,444	17,572	20,858	—
Lithuania	0	77	498	635	708	Portugal	789	311	1,660	1,607	—
Norway	161	683	4,760	3,635	4,705	Sweden	289	154	4,096	2,915	—
Netherlands	4,359	8,596	80,985	135,675	147,201	Switzerland	6) 1,021	6) 1,019	6) 12,666	6) 11,094	—
Poland	860	818	9,758	10,734	12,313	Czechoslovakia	1,230	721	14,758	10,302	—
Sweden	340	584	9,707	7,846	9,092	Ceylon	29	53	542	597	—
Switzerland	463	866	10,523	22,959	23,803	India	5)	313	5)	3,062	—
Czechoslovakia	1,378	1,124	17,977	15,884	18,237	Indo-China . . . . .	...	...	2) 485	2) 527	—
Yugoslavia	130	42	1,274	1,272	1,473	Japan . . . . .	...	...	2) 10,265	3) 8,483	—
Canada	1,177	1,016	14,522	14,129	15,371	Java and Madura . . . . .	...	...	2) 1,404	2) 1,210	—
United States	21,314	39,752	356,971	344,734	406,670	Syria and Lebanon . . . . .	...	...	2) 161	2) 82	—
Australia	520	611	9,138	5,789	7,308	Egypt . . . . .	...	...	2) 4,131	2) 5,366	—
New Zealand . . . . .	...	...	3) 1,076	3) 1,030	1,504	Union of S. Africa . . . . .	...	...	2) 1,014	2) 1,845	—
Totals	66,436	85,922	952,947	1,002,156	1,156,135	New Zealand . . . . .	...	...	3) 346	3) 379	—
						Totals	34,621	37,138	378,155	387,587	—

* Flour reduced to grain on the basis of the coefficient: 1,000 centals of flour = 1,333.33 centals of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 31 December. — 2) Data up to 30 June. — 3) Data up to 31 May. — 4) See Net Imports. — 5) See Net Exports. —

6) Wheat only.

STOCKS

STOCKS OF CEREALS IN COMMERCIAL ELEVATORS AND MILLS IN GERMANY 1).

PRODUCTS	Last day of month			Last day of month		
	August 1932	July 1932	June 1932	August 1932	July 1932	June 1932
	1,000 centals			1,000 bushels or barrels		
WHEAT:						
Grain	8,587	3,446	3,935	14,311	5,743	9,891
Flour for bread	1,792	2,017	2,549	914	1,029	1,300
TOTAL 2)	10,977	6,136	9,332	18,292	10,225	15,553
RYE:						
Grain	9,857	3,534	5,064	17,602	6,311	9,043
Flour for bread	924	569	1,023	471	290	522
TOTAL 2)	11,089	4,292	6,429	19,800	7,664	11,479
BARLEY	2,430	1,561	944	5,062	3,252	1,966
OATS	849	536	1,049	2,652	1,674	3,279

1) See note under the corresponding table in the Bulletin for March, at page 218. — 2) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of flour = 1,333.33 centals of grain (1,000 barrels of flour = 4,333.33 bushels of wheat or 4,334.80 bushels of rye).

COMMERCIAL CEREALS IN STORE IN CANADA AND THE UNITED STATES.

SPECIFICATION	Friday or Saturday nearest to 1st of month					Friday or Saturday nearest to 1st of month				
	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Canadian in Canada	69,450	71,237	80,424	59,684	50,572	115,750	118,728	134,040	99,473	84,287
U. S. in Canada	7,288	9,218	9,537	19,342	2,287	12,147	15,364	15,895	32,236	3,812
U. S. in the United States . .	113,014	107,432	100,991	156,713	120,792	188,357	179,053	168,318	261,189	201,319
Canad. in the United States .	3,347	2,824	2,719	3,977	7,562	5,579	4,707	4,532	6,628	12,603
Total	193,099	190,711	193,671	239,716	181,213	321,833	317,852	322,785	399,526	302,021
RYE:										
Canadian in Canada	2,685	2,891	3,957	6,862	4,783	5,116	5,163	7,066	12,254	8,541
U. S. in Canada	68	90	136	994	1,922	121	160	242	1,775	3,432
U. S. in the United States . .	5,070	5,016	5,008	5,267	7,979	9,053	8,958	8,942	9,406	14,248
Canad. in the United States .	231	194	279	1	96	412	347	498	2	172
Total	8,234	8,191	9,380	13,124	14,780	14,702	14,628	16,748	23,437	26,393
BARLEY:										
Canadian in Canada	1,395	1,699	2,085	3,537	9,617	2,907	3,540	4,344	7,368	20,035
U. S. in Canada	10	0	5	12	313	20	1	6	24	632
U. S. in the United States . .	3,195	1,655	1,340	3,404	5,253	6,657	3,448	2,791	7,092	10,945
Canad. in the United States .	1	0	27	1	624	2	1	57	3	1,300
Total	4,601	3,354	3,455	6,954	15,807	9,586	6,990	7,198	14,487	32,932
OATS: (1)										
Canadian in Canada	1,952	2,129	1,924	2,580	2,031	6,100	6,652	6,013	8,061	6,348
U. S. in Canada	364	49	43	37	911	1,137	153	134	117	2,846
U. S. in the United States . .	8,752	4,399	3,403	4,818	8,270	27,351	13,748	10,635	15,032	25,844
Canad. in the United States .	0	0	0	13	7	0	0	0	41	21
Total	11,068	6,577	5,370	7,448	11,219	34,588	20,553	16,782	23,251	35,059
MAIZE:										
U. S. in Canada	273	253	402	312	82	487	451	717	557	148
Of other origin in Canada . .	321	552	707	160	407	573	985	1,263	285	726
U. S. in the United States . .	8,254	6,276	9,077	5,076	2,363	14,740	11,207	16,209	9,064	4,220
Total	8,848	7,081	10,186	5,548	2,852	15,800	12,643	18,189	9,906	5,094

1) For oats the bushel is of 32 lbs.

CARRY-OVER OF WHEAT IN CANADA ON 31st JULY.

LOCATION	1932	1) 1931	1) 1930	1932	1) 1931	1) 1930
	1,000 centals			1,000 bushels		
On farms.	4,498	11,675	3,196	7,496	19,459	5,326
In country and interior terminal elevators, western division	16,561	18,139	11,777	27,601	30,232	9,628
In terminal elevators Lake Superior 2)	29,210	27,421	21,925	48,683	45,702	36,541
In elevators Pacific Coast 3)	5,823	5,750	5,126	9,705	9,583	8,544
In elevators Hudson Bay 4)	1,375	—	—	2,291	—	—
In eastern elevators	10,704	8,607	12,825	17,840	14,345	21,375
In flour mills	5) 4,806	4,489	4,141	8,010	7,481	6,902
In transit (alioat for unloading at Can. ports or on railways)	5,594	4,366	7,667	9,323	7,277	12,779
TOTAL Canadian wheat as grain	78,571	80,447	66,657	130,949	134,079	111,095
U. S. grain in store in Canada	9,218	13,760	2,377	15,364	22,933	3,961
TOTAL WHEAT AS GRAIN IN CANADA	87,789	94,207	69,034	146,313	157,012	115,056

1) Corrected data. — 2) Port William and Port Arthur. — 3) Vancouver, New Westminster, Victoria, Prince Rupert. — 4) Churchill. — 5) Incomplete, partly estimated.

QUANTITIES OF CEREALS ON OCEAN PASSAGE WITH FIRST DESTINATION FOR EUROPE.

PRODUCTS	Saturday nearest to 1st of month					Saturday nearest to 1st of month				
	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930
	1,000 centals					1,000 bushels				
Wheat (and flour in terms of wheat)	14,712	18,826	27,101	28,147	28,632	24,520	31,576	45,168	46,912	47,720
Rye.	106	1,186	1,032	667	211	189	2,117	1,843	1,191	377
Barley.	2,056	1,620	1,740	3,544	5,044	4,283	3,375	3,625	7,383	10,508
Oats.	851	1,040	650	1,274	970	2,660	3,250	2,030	3,980	3,030
Maize.	14,549	20,846	20,832	23,506	18,082	25,980	37,226	37,200	41,974	32,289

Authority: *Broomhall's Corn Trade News*.

GRAIN AND FLOUR STOCKS AT THE PORTS OF GREAT BRITAIN AND IRELAND 1).

PRODUCTS	First of the month					First of the month				
	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Grain	4,392	5,712	5,688	7,392	2,832	7,320	9,520	9,480	12,320	4,720
Flour as grain	600	840	888	672	792	1,000	1,400	1,480	1,120	1,320
TOTAL	4,992	6,552	6,576	8,064	3,624	8,320	10,920	10,960	13,440	6,040
Barley.	300	400	700	420	500	625	833	1,458	875	1,042
Oats.	336	480	576	672	432	1,050	1,500	1,800	2,100	1,350
Maize.	2,976	2,496	2,448	2,640	1,152	5,314	4,457	4,371	4,714	2,057

Authority: *Broomhall's Corn Trade News*.

1) Imported cereals.

CARRY-OVER OF COTTON IN THE UNITED STATES ON 31ST JULY.

Total stocks of cotton as on July 31 include, besides the monthly information on stocks in consuming establishments and in public storage and at compresses, also stocks in other positions, namely: cotton for export on shipboard but not cleared; cotton coastwise; cotton in transit to ports, interior towns, and mills; cotton on farms and in private storage. These stocks in other positions amounted to 8,659,000 centals (1,760,000 bales) in 1932, against 4,117,000 centals (850,000 bales) in 1931 and 2,291,000 centals (470,000 bales) in 1930, making total stocks of 47,623,000; 30,849,000 and 22,066,000 centals (9,682,000; 6,370,000 and 4,530,000 bales) in the three years mentioned.

STOCKS OF COTTON ON HAND IN THE UNITED STATES.

LOCATION	Last day of the month					Last day of the month				
	August 1932	July 1932	June 1932	August 1931	August 1930	August 1932	July 1932	June 1932	August 1931	August 1930
	1,000 centals					1,000 bales (counting round as half bales)				
In consuming establishments . . .	5,355	5,989	6,501	4,122	4,908	1,090	1,219	1,323	840	1,015
In public storage and at compresses . .	32,211	32,975	35,194	21,772	16,738	6,548	6,703	7,154	4,426	3,456
TOTAL . .	37,566	38,964	41,695	25,894	21,646	7,638	7,922	8,477	5,266	4,471

STOCKS OF COTTON IN EUROPE.

COUNTRIES, PORTS, DESCRIPTIONS	Thursday or Friday nearest to 1st of month					Thursday or Friday nearest to 1st of month				
	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930
	1,000 centals					1,000 bales (1 bale = 478 lbs.)				
<i>Great Britain:</i>										
American	1,801	1,682	1,931	1,691	1,186	377	352	404	354	248
Argentine, Brazilian, etc. . . .	131	90	53	226	384	27	19	11	47	80
Peruvian, etc. . .	309	208	177	272	339	65	43	37	57	71
East Indian, etc.	293	329	392	683	284	61	69	82	143	60
Egyptian, Sudanese	1,454	1,547	1,652	1,334	1,340	304	324	346	279	280
Other 1)	110	111	119	253	291	23	23	25	53	61
TOTAL	4,098	3,967	4,324	4,459	3,824	857	830	905	933	800
<i>Bremen:</i>										
American	1,322	1,968	1,582	1,318	856	277	307	330	276	179
Other	44	29	29	81	64	9	6	7	17	13
TOTAL	1,366	1,497	1,611	1,399	920	286	313	337	293	192
<i>Le Havre:</i>										
American	562	677	799	1,039	399	118	142	167	217	84
Other	58	62	72	196	201	12	13	15	41	42
TOTAL	620	739	871	1,235	600	130	155	182	258	126
<i>Total Continent 2):</i>										
American	2,448	2,828	3,108	2,687	1,451	512	592	650	562	303
Argentine, Brazilian, etc. . . .	36	30	35	108	76	8	6	7	23	16
E. Indian, Australian, etc. . . .	73	70	74	202	281	15	15	15	42	59
Egyptian	134	127	127	112	79	28	26	27	23	17
W. Indian, W. African, E. African, etc. . . .	36	32	32	56	134	8	7	7	12	28
TOTAL	2,727	3,087	3,376	3,165	2,021	571	646	706	662	423

Authority: *Liverpool Cotton Ass.*

1) Includes: W. Indian, etc., E. African, etc.; W. African, and Australian. — 2) Includes Bremen, Havre, and other Continental ports.

STOCKS OF COTTON AT BOMBAY AND AT ALEXANDRIA.

PORTS	Thursday nearest to 1st of month					Thursday nearest to 1st of month				
	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930
	1000 centals					1000 bales (1 bale = 478 lbs.)				
Bombay 1)	2,995	3,152	3,356	2,160	2,816	627	659	702	452	589
Alexandria	3,326	3,745	4,009	4,050	3,424	696	783	839	843	716

Authorities: *East Indian Cotton Ass.* and *Commission de la Bourse de Minet-el-Bassal*.

1) Stocks held by exporters, dealers and mills.

COTTON STOCKS AT ALEXANDRIA ON 31ST AUGUST, ACCORDING TO VARIETIES.

DESCRIPTIONS	1932	1931	1930	1932	1931	1930
	1,000 centals			1,000 bales (1 bale = 478 lbs.)		
Sakellaridis	1,315	1,899	1,462	275	397	306
Achmouni-Zagora	1,601	1,851	1,702	335	387	356
Pilion	115	160	99	24	34	20
Other varieties	221	120	161	46	25	34
TOTAL	3,252	4,030	3,424	680	843	716
Including property of Egyptian Government.	(1,676)	(2,586)	(2,934)	(351)	(541)	(614)

Authority: *Commission de la Bourse de Minet-el-Bassal*.

IMPORT DUTIES ON CEREALS AND FLOUR

CHANGES TO BE MADE IN THE DUTIES PUBLISHED ON PAGES 160 TO 163 OF THE CROP REPORT FOR FEBRUARY
(SEE ALSO THE SAME HEADING IN THE PRECEDING CROP REPORTS FOR THIS YEAR).

COUNTRY	PRODUCT	Date when enforced	Original data per metric quintal	Data in Amer. cents per bushel or barrel
Austria	Turnover tax <i>ad valorem</i> (on cost including import duty):			
	whole cereals	21 August	4 %	4 %
	wheat flour	"	14 %	14 %
"	Barley other than for stock feeding	30 August	1) x)	1) x)
Spain	Maize	21 August	pes. 7.00	n. 34.31
Estonia	Wheat	30 August	2) 2)	2) 2)
France	Rye	17 September	Fr. frs. 40.00	39.79
"	Oats	"	" 40.00	22.74
"	Maize, other than yellow maize, small grain, Bessarabian type	"	" 40.00	39.79
Italy	Oats	1 September	liras 16.00	12.24
Latvia	Oats	13 July	lats 24.00	67.21
"	Maize	"	" 1.00	4.90
Portugal	Wheat 3)	17 May	esc. 72.00	65.59
Rumania	Wheat	14 September	lei 70.00	63.75
"	Rye	"	400.00	65.12
"	Wheat and rye flour	"	400.00	60.77
Switzerland	Maize (supplementary duty)	6 September	Sw. frs. 3.00	319.05
Czechoslovakia	Rye (supplementary duty)	6 September	Cz. crs. 39.00	14.70
"	Wheat and rye flour (supplementary duty)	"	" 61.00	29.45
				161.07

1) Import subject to special permission by the Government. — 2) Monopoly abolished but import prohibited. — 3) Mills situated on the continent are authorised to import during May and June, a total of 350,000 quintals (1,285,008 bushels) against payment of a duty of 72.00 esc. in the case of imports via Lisbon and of 70.00 esc. via Oporto; dating from June 6, this quantity has been increased by 6,673 quintals (24,519 bushels; duty 70.00 esc.).

MONTHLY REVIEW OF PRICES 1)

PRODUCTS, MARKETS AND DESCRIPTION	16	9	2	26	AVERAGE 2)				Commercial Season		
	Sept.	Sept.	Sept.	August	August	Sept.	Sept.	Sept.	1931-32	1930-31	
	1932	1932	1932	1932	1932	1932	1930				
WHEAT.											
Budapest (a): Tisza region (78 80 kg. p. hl.; pengő p. quintal)	14.17	13.92	14.25	3) 14.22	3) 14.19	9.25	15.96	12.28	15.34		
Braila: Good quality (lei p. quintal)	485	475	475	n. 450	3) n. 420	274	407	305	351		
Winnipeg: No. 1 Manitoba (cents p. 60 lbs.)	50 ^a / ₈	54 ¹ / ₄	54 ⁷ / ₈	53 ¹ / ₄	55 ¹ / ₈	5) 53	78	59 ¹ / ₄	64 ¹ / ₄		
Chicago: No. 2 Hard Winter (cents p. 60 lbs.)	n. 52 ^a / ₈	55 ^a / ₈	53 ¹ / ₄	53	53 ^a / ₈	n. 50 ¹ / ₈	83 ¹ / ₄	54 ^a / ₈	78		
Minneapolis: No. 1 Northern (cents p. 60 lbs.)	52	56 ¹ / ₈	59 ¹ / ₈	56 ¹ / ₂	56	67 ¹ / ₂	84 ¹ / ₂	66 ¹ / ₈	77 ¹ / ₈		
New-York: No. 2 Hard Winter (cents p. 60 lbs.)	61	64	63 ¹ / ₂	62 ¹ / ₂	61 ¹ / ₈	62 ¹ / ₈	91 ¹ / ₈	66 ¹ / ₈	91 ¹ / ₈		
Buenos Aires (b): Barletta (80 kg. p. hectol.; pesos paper p. quintal)	6.95	7.10	7.00	6.90	7.05	5.95	8.97	6.68	6.83		
Karachi: Karachi white, 2 % barley, 1 ¹ / ₂ % dirt (rupees p. 656 lbs.)	28-6-0	28-10-0	29-4-0	27-13-0	28-0-6	17-5-0	23-12-0	21-15-9	19-15-2		
Berlin: Home grown (Reichsmarks p. quintal)	20.80	21.00	20.90	3) 20.80	3) 21.10	21.45	23.92	23.63	26.00		
Hamburg, c. i. f. (Reichsmarks p. quintal):											
No. 3 Manitoba	6) 9.22	6) 9.57	6) 9.26	6) 9.18	6) 9.56	7) 10.58	14.45	6) 10.38	6) 12.65		
No. 2 Hard Winter	8) 9.64	8) 10.46	8) 10.11	9.64	9.79	8.52	14.64	n. 9.32	n. 13.00		
Barusso (79 kg. p. hectol.)	9) 8.92	9) 9.23	9) 9.01	9) 8.92	9) 8.92	8.19	14.49	8.78	11.10		
Antwerp (Belgian francs p. quintal):											
Home grown	70.00	67.00	65.00	n. q.	n. q.	91.25	n. 102.50	83.10	95.50		
No. 2 Hard Winter, Gulf	8) 85.00	8) 85.00	8) 83.00	8) 81.00	8) 81.25	8) 73.25	127.00	8) 81.75	112.50		
Paris: Home-grown, 75-77 kg. (francs p. quintal).	119.25	120.50	121.00	127.25	124.35	166.30	171.55	167.10	175.00		
London: Home grown (shillings p. 304 lbs.)	24.9	24/-	24/-	3) 24/-	5) 26.1	5) 19.6	30.4	26.5	27.1		
London and Liverpool c. i. f., shipping current month (shillings p. 480 lbs.) 1):											
South Russian (on sample)	n. q.	n. q.	26.9	26.1 ¹ / ₄	26.5	5) 17.3	29.10	22.3	23.7		
No. 3 Manitoba	25/10 ¹ / ₈	26.9	26.7 ¹ / ₄	26.1 ¹ / ₈	26.4	5) 18.11	30.7	25.9	25.4		
No. 2 Hard Winter	n. q.	8) 28.3	8) 27.9	27.6	27.5	5) 18.3	30.10	25.3	26.4		
White Pacific	n. q.	n. q.	n. q.	n. q.	5) 19.3	30.10	30.10	26.5	26.7		
Rosate (63 ¹ / ₂ lbs.), afloat	12) 27/-	12) 27/6	12) 26.9	12) 26.7 ¹ / ₂	12) 26.6	6) 16.11	14) 30.11	23.8	23.5		
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	31.1	31.1	27/-	27/-		
Australian	28.9	29/-	28.3	27.9	27.7	5) 19.2	31.7	25.9	25.7		
Milan (a): Home-grown, soft (lire p. quintal)	104.00	104.00	103.00	101.00	98.75	94.25	124.50	106.20	109.10		
Genoa c. i. f. (shillings p. metric ton): La Plata. . . . .	...	15) n.2.17	15) n.2.12	15) n.2.18	15) n.2.21	n. q.	137.6	15) n.2.21	110/-	
RYE.											
Budapest (a): Home-grown (pengő p. quintal)	7.32	7.30	7.02	3) 7.02	3) 7.71	9.02	8.95	12.24	10.79		
Berlin: Home-grown (Reichsmarks per quintal)	16.10	16.40	16.10	3) 15.90	3) 15.95	18.14	17.27	19.00	17.18		
Hamburg c. i. f.: La Plata, 74-75 kg. (R. M. p. quintal)	17) 6.89	17) 6.95	17) 6.71	n. q.	n. q.	n. q.	n. q.	8.36	n. 7.65		
Minneapolis: No. 2 (cents p. 56 lbs.)	34	36	35	33	33 ¹ / ₄	39 ¹ / ₄	53	42 ¹ / ₈	42 ¹ / ₈		
Groningen (c): Home-grown (florins p. quintal)	4.20	4.20	4.20	4.20	4.71	4.60	4.75	5.13	4.45		
BARLEY.											
Braila: Average quality (lei p. quintal).	205	210	197	206	206	189	215	263	232		
Winnipeg: No. 4 Western (cents p. 48 lbs.)	28	30 ³ / ₄	31 ¹ / ₂	31 ¹ / ₂	32 ¹ / ₄	5) 29 ¹ / ₈	28 ¹ / ₂	34 ¹ / ₈	26 ¹ / ₈		
Chicago: Feeding (cents p. 48 lbs.)	25	28	32	27	26 ¹ / ₄	44	50	43 ¹ / ₄	43 ¹ / ₈		
Berlin: Home-grown fodder (Reichsmarks per quintal)	17.00	17.20	16.55	15.95	16.19	15.44	18.66	16.41	19.52		
Antwerp: Danubian (francs p. quintal)	62.50	61.00	63.00	64.00	66.75	69.75	75.50	77.25	73.25		
London: English malting (shillings p. 448 lbs.)	35/-	35/-	35/-	3) 35/-	3) 35/-	5) 40/-	35/-	39/4	35/8		
London and Liverpool, c. i. f., parcels (shillings per 400 lbs.):											
Danubian 3 %	17/9	18/3	17/6	17/9	17/7	5) 13.3	14/6	n. q.	15/2		
Russian (Azoff-Black sea)	17/6	18/3	17/6	17/6	17/9	5) 13.3	14/7	18/11	14/3		
Canadian Western, N. 3.	18/10 ¹ / ₄	19/7 ¹ / ₄	20/-	19/7 ¹ / ₄	20/-	5) 15.4	16/7	20/11	15/11		
Californian malting (shillings p. 448 lbs.)	21/6	22/-	21/6	18) 21/6	22/1	5) 30/-	28/4	33/4	27/8		
Groningen (c): Home grown winter (fl. p. quintal).	5.00	5.00	5.00	4.70	4.94	5.02	5.12	5.87	4.97		

a) Saturday prices. — b) Thursday prices. — c) Prices of preceding Tuesday.

1) All quotations are, unless otherwise stated, for spots. — 2) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 3) New crop. — 4) 19 August: 14.55. — 5) Average of the first three weeks. — 6) No. 2 Manitoba. — 7) No 1 Manitoba. — 8) No. 1 Hard Winter. — 9) 80 Kg. p. hl. — 10) 78 Kg. p. hl. — 11) German (on sample): 16 Sept.: 25/10 ¹/₄; 9 Sept.: 25/4 ¹/₈; 2 Sept.: 24/9; 26 August: 23/9; August average: 23/2. — 12) 64 lbs. p. bushel. — 13) 63 lbs. p. bushel. — 14) 62 ¹/₂ lbs. p. bushel. — 15) Price in \$ per quintal. — 16) 19 August: 7.87. — 17) Russian (72-73 kg. p. hl.). — 18) Shipping September-October.

PRODUCTS, MARKETS AND DESCRIPTION	16	9	2	26	AVERAGE (1)					
	Sept.	Sept.	Sept.	August	August	Sept.	Sept.	Commercial		
	1932	1932	1932	1932	1932	1931	1930	Season		
								1931-32	1930-31	
OATS.										
Braila: Good quality (lei p. quintal)	205	205	205	n. 210	200	229	206	285	247	
Winnipeg: No. 2 White (cents per 34 lbs.)	26 3/4	27 3/8	27 3/8	27	30 1/4	2) 27 1/2	32 7/8	31 3/8	30	
Chicago: No. 2 White (cents per 32 lbs.)	17 1/2	17 3/4	18 1/4	17 1/2	18 1/4	23 7/8	38 5/8	24 1/8	32 7/8	
Buenos Aires (a): Current quality (pesos paper p. quintal)	5.60	5.75	5.50	5.35	5.59	4.77	3.89	5.33	3.58	
Berlin: Home grown (Reichsmarks p. quintal) . .	13.95	13.95	13.85	3) 13.55	3) 14.55	13.81	16.61	15.10	16.17	
Paris: Home grown, black and other (francs p. quintal)	86.75	83.25	84.50	3) 88.00	3) 83.60	85.75	82.00	101.75	81.00	
London: Home grown white (shillings p. 336 lbs.)	19/6	19/-	19/-	3) 18/6	3) 21/9	2) 15/8	16/6	21/3	18/4	
London and Liverpool c. i. f., parcels (shillings p. 320 lbs.):										
Danubian (39-40 lbs.)	14/10 1/2	15/-	14/9	4) 14/9	14/5	n. q.	13/8	n. q.	n. 12/1	
Plate (i. a. q.)	15/6	15/9	15/3	14/7 1/2	15/-	2) 11/3	12/1	14/5	10/9	
Chilian Tawny	n. q.	n. q.	n. q.	n. q.	n. q.	2) 12/3	13/8	n. 16/-	12/-	
Milan (b): spot (lire p. quintal):										
Home grown	67.50	67.50	67.50	65.00	65.60	69.00	79.85	73.60	73.95	
Foreign imported	65.50	65.50	65.50	63.00	64.10	63.50	70.15	65.20	60.40	
MAIZE.										
								1930-31	1929-30	
Braila: Danubian (lei p. quintal)	204	203	188	n. 195	189	172	316	210	309	
Chicago: No. 2 Mixed American (cents p. 56 lbs.)	30	32 1/4	32 1/2	31 1/2	32 1/2	44	94 1/4	58 1/4	85 7/8	
Buenos Aires (a): Yellow Plate (pesos paper p. quintal)	4.90	5.02	4.82	4.82	4.92	3.53	5.56	3.82	6.17	
Antwerp, spot (Belgian francs p. quintal):										
Bessarabian	n. q.	n. q.	n. q.	n. q.	n. q.	65.25	98.75	71.25	n. 97.50	
Cinquantino	63.00	63.00	65.00	70.00	72.25	55.75	126.00	81.00	131.25	
Yellow Plate	57.50	56.00	55.50	59.00	58.60	52.00	96.00	65.00	109.25	
London and Liverpool, parcels, c. i. f. (shillings p. 480 lbs.):										
Danubian	5) 19/7 1/2	20/7 1/2	19/9	19/6	19/9	2) 13/7	22/1	n. 17/4	24/11	
Yellow Plate	18/10 1/2	19/6	19/-	18/10 1/2	19/1	2) 12/7	22/8	n. 15/6	25/3	
No. 2 White African	5) 21/3	5) 21/3	21/-	20/6	20/6	2) 18/1	22/3	n. 18/1	26/-	
Milan (b): Home grown (lire p. quintal)	n. q.	n. q.	n. q.	n. 80.00	n. 80.00	59.50	68.35	51.90	71.35	
RICE (CLEANED).										
								1931	1930	
Milan (b): Maratelli (lire p. quintal)	155.00	168.00	168.00	168.00	171.75	103.75	128.35	117.35	152.15	
Rangoon: No. 2 Burma (rupees p. 7500 lbs.) . .	265	265	275	265	264 1/4	277 1/4	406	249 1/4	393 3/4	
Saigon (Indo-chinese piastres p. quintal):										
No. 1 Round white (25 % broken) . . . . .	...	...	...	...	6) ...	7.50	10.89	6.73	11.36
N. 2 Japan (40 % broken) . . . . .	...	...	...	...	7) ...	7.07	10.44	6.20	10.89
London (a): c. i. f. (shillings p. 112 lbs.):										
Spanish Belloch, No. 3 oiled	3) 13/11 1/2	3) 13/4 1/2	3) 13/5	14/6	14/5	2) 10/3	13/3	11/11	14/1	
Italian good, No. 6 oiled	n. q.	n. q.	n. q.	n. q.	15/6	n. q.	n. q.	13/7	14/11	
American Blue Rose	3) 18/-	n. q.	17/9	17/9	16/8	2) 17/1	20/5	18/7	21/9	
Burma, No. 2	8/2	8/4	8/4	7/11	7/11	2) 8/3	11/3	7/11	10/11	
Saigon, No. 1	7/10 1/2	8/-	8/-	8/1 1/2	8/3	2) 8/2	11/3	8/1	11/6	
Siam, Garden, No. 1	8) 9/-	8) 9/3	8) 8/10 1/2	8) 8/10 1/2	8) 8/9	2) 9/1	14/5	9/5	14/-	
Tokio: Various qualities (yens p. koku)	20.00	20.10	20.50	20.90	20.32	19.27	28.72	18.46	25.57	
LINSEED.										
Buenos Aires (a): Current quality (pesos paper p. quintal)	10.55	10.20	9.62	9.40	9.31	10.67	15.82	10.82	17.19	
Antwerp: Plate (Belgian francs p. quintal) . . .	116.00	107.50	104.00	103.50	101.25	136.00	257.00	146.00	284.25	
Hull, c. i. f.: Plate (p. sterling p. 1 ton) . . .	9-8-9	9-5-0	8-16-3	8-11-3	8-7-10	2) 7-11-3	14-0-4	8-14-1	15-0-5	
London, c. i. f.: Bombay bold (p. st. p. long ton).	12-5-0	12-0-0	11-5-0	11-3-9	10-19-8	2) 9-16-8	16-18-1	11-9-6	17-14-4	
Duluth: No. 1 Northern (cents p. 56 lbs.) . . .	115 1/2	111 1/4	111 1/2	102	101 1/4	134 1/8	189 1/2	148	236	

a) Thursday prices. — b) Saturday prices.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) Average of the first three weeks. — 3) New crop. — 4) Shipping September-October. — 5) Shipping October-November. — 6) 19 August: 5.31; 12 August: 5.54; 5 August: 5.49; 29 July: 5.58; 22 July: 5.47; average July: 5.54. — 7) 19 August: 5.06; 12 August: 5.24; 5 August: 5.21; 29 July: 5.22; 22 July: 5.14; average July: 5.21. — 8) Siam special. — 9) 19 August: 19.70; 12 August: 20.30; 5 August: 20.40; 29 July: 20.50; 22 July: n. q.; average July: 21.45.

PRODUCTS, MARKETS AND DESCRIPTION	16	9	2	26	AVERAGE 1)				Commercial	
	Sept.	Sept.	Sept.	August	August	Sept.	Sept.	Sept.	Season	
	1932	1932	1932	1932	1932	1932	1932	1932	1930-31	1929-30
COTTONSEED.										
Alexandria: Sakellaridis (piastres per ardeb) . . .	69.6	67.7	67.6	67.0	a) 67.1	48.3	59.4	52.2	67.9	
Hull: Sakellaridis (p. sterl. per long ton) . . .	n. 7-5-0	n. 7-1-3	n. 7-0-0	6-17-6	6-19-1	3) 4-19-2	5-15-7	5-12-6	6-18-2	
COTTON.										
									1931-32	1930-31
New Orleans: Middling (cents per lbs.)	6.98	8.09	8.60	8.52	7.19	6.22	10.61	6.20	10.07	
New York: Middling (cents per lbs.)	7.05	8.10	8.75	8.65	7.34	6.54	10.99	6.35	10.38	
Bombay: M. g. Broach f. g. (rupees per 784 lbs.) . . .	221	233	246	244	214 1/2	152 1/2	208	181 1/2	191 1/4	
Alexandria (a) (talariis per kantar):										
Sakellaridis f. g. f.	17.10	16.92	16.82	16.57	14.91	11.14	21 1/2	12.17	17.12	
Ashmuni (Upper Egypt) f. g. f.	13.75	13.95	14.15	13.95	12.51	8.37	13 1/2	9.73	12.00	
Bremen: Middling (U. S. cents per lbs.)	8.49	9.26	9.45	9.47	8.42	7.59	12.55	7.44	11.59	
M. g. Broach fully good (pence per lbs.)	n. 5.10	n. 5.50	n. 5.50	n. 5.50	n. 5.04	3) n. 3.52	n. 4.71	4.48	n. 4.63	
Le Havre: Middling, Gulf (francs per 50 kg.) . . .	250	279	291	283	247	224	364	216	348	
Liverpool (pence per lbs.):										
Middling fair	n. 6.93	n. 7.38	n. 7.57	n. 7.45	n. 6.60	3) n. 4.92	n. 7.56	n. 5.85	n. 6.93	
Middling	5.88	6.38	6.57	6.45	5.60	3) 3.72	6.23	4.79	5.72	
São Paulo, good fair	n. 6.13	n. 6.63	n. 6.82	n. 6.70	n. 5.89	3) 3.90	6.24	n. 4.98	5.91	
M. g. Broach, fully good	n. 5.48	n. 5.95	n. 6.09	n. 5.97	n. 5.16	3) n. 3.00	n. 4.22	n. 4.34	n. 4.25	
Sakellaridis, fully good fair	8.75	8.60	8.90	8.75	7.92	3) 5.73	10.30	6.76	9.08	
BUTTER.										
									1931	1930
Copenhagen (a) (Kr. p. quintal)	198	192	192	170	166	3) 208	246	209	245	
Maastricht, auction (b): Dutch (florins p. kg.) . . .	1.48	1.48	1.33	1.31	4) 1.32	1.31	1.68	1.38	1.70	
Hamburg, auction (b): Schleswig-Holstein butter, with quality mark (R. M. per 50 kg.)	114.17	112.98	110.17	105.14	5) 104.78	132.48	146.85	131.22	146.67	
Kempten (b): Allgäu butter (Pfennige p. half kg.) . .	6) 105	6) 105	6) 101	6) 95	6) 96	105	127	110	128	
London (c) (shillings p. cwt.):										
British blended	135/4	135/4	135/4	135/4	135/4	3) 140/-	154/-	140/4	158/8	
Danish	126/-	124/-	116/-	119/-	119/6	3) 130/-	153/6	133/4	153/6	
Irish creamery, salted	115/-	114/-	116/-	115/-	n. q.	n. q.	135/6	119/3	134/10	
Dutch	115/-	115/-	115/-	115/-	115/-	3) 123/8	145/7	132/1	151/11	
Argentine	102/-	n. q.	100/-	104/-	103/3	3) 117/-	130/-	117/7	135/10	
Siberian	7) 96	n. q.	n. q.	n. q.	n. q.	3) 89/8	130/9	3) 97/4	131/6	
Australian, salted	112/-	110/-	108/-	108/-	108/6	3) 115/-	131/6	116/8	135/9	
New Zealand, salted	120/-	118/-	116/-	116/-	113/9	3) 117/4	133/-	119/11	137/8	
CHEESE.										
Milan (lire per quintal):										
Parmigiano-Reggiano, 1st quality of last year's production	950	950	950	920	920	1,100	1,100	1,103	1,160	
Green Gorgonzola, mature, choice	475	475	475	475	470	615	642	616	671	
Rome: Roman pecorino, choice (lire p. quintal) . . .	1,175	1,175	1,175	1,175	1,175	1,075	1,150	1,121	1,207	
Alkmaar: Edam 40 + (40 % butterfat, with the country's cheesemark, factory cheese, small; florins p. 50 kg.)	23.00	22.00	19.00	19.50	9) 20.25	34.75	40.37	32.63	40.83	
Gouda: Gouda 45 + (whole milk cheese, with the country's cheesemark, home made; florins p. 50 kg.)	26.00	25.00	24.00	24.00	10) 24.00	40.50	46.00	37.93	45.56	
Kempten (b): (Pfennige per half kg.):										
Soft cheese, green (20 % butterfat)	22 1/2	22 1/2	22 1/2	22 1/2	22 1/2	27 1/2	33	24	27	
Emmenthal from the Allgäu (whole milk cheese) 1st quality	83	83	83	83	83	99	11) 94	97 1/2	11) 97	
London (c) (shillings per cwt.):										
English Cheddar	96/-	96/-	100/-	94/-	94/-	3) 94/8	96/-	99/10	103/4	
Canadian	65/6	65/6	65/6	64/6	63/10	3) 64/-	81/8	75/9	93/11	
New Zealand	66/-	62/-	61/-	61/-	60/9	3) 64/10	78/1	63/2	82/2	
Liverpool (c): Engl. Cheshire, ungraded (sh. p. cwt.)	77/-	74/8	74/8	77/7	78/9	3) 72/4	80/6	94/3	97/5	

a) Thursday prices. — b) Wednesday prices. — c) Average prices for weeks ending on preceding Wednesday.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) Rectified price: 19 August: 65.1.
 — 3) Average for the first three weeks. — 4) 16 August: 133. — 5) 19 August: 102.61. — 6) Quoting system changed: actual prices are
 generally 3 Pf. higher than according to the former system used in Kempten. — 7) Russian. — 8) Average calculated from the prices for the
 Fridays and the Thursdays preceding. — 9) 19 August: 20.00. — 10) 19 August: 24.00. — 11) Average price for all qualities.

THE TREND OF PRICES OF AGRICULTURAL PRODUCTS DURING AUGUST 1932

In the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries. The indices collected together have been obtained according to different methods and criteria. A detailed account of the items included in each series and the system of construction of the index-numbers may be found in the volume published especially for this purpose by the Institute, entitled "Index-numbers of prices of agricultural products and other price-indices of interest to the farmer". We refer the reader to this volume for an exact interpretation of the significance of the different series of data.

Owing to the substantial divergence which often exists in the value and significance of the data available, much care is advisable in their utilisation from an international point of view. For this reason it has been considered opportune to reproduce all the data in their original form only, without attempting formally to unite them. The latter process, by a comparison of often heterogeneous data, might easily lead to the drawing of erroneous relations and conclusions.

But in addition to the original data, and subject to the above comments, a summary table is given below.

COUNTRIES	Percentage variations in the index-numbers for August, 1932			
	compared with those for July, 1932		compared with those for August, 1931	
	Index-numbers of prices of agricultural products	General index-numbers of prices	Index-numbers of prices of agricultural products	General index-numbers of prices
Germany	— 1.6	— 0.5	— 12.0	— 13.4
England and Wales	— 0.9	+ 2.3	— 13.2	+ 1.9
Argentina	+ 3.2	—	— 2.4	—
Canada	+ 0.6	+ 0.3	— 11.7	— 5.8
Estonia	— 4.3	—	— 29.5	—
United States	+ 3.5	—	— 21.3	—
Finland	+ 2.5	+ 1.1	— 22.7	— 7.1
Hungary	— 1.4	— 0.0	+ 2.8	+ 9.8
Italy	— 8.0	— 5.3	— 3.6	— 3.3
New Zealand	— 2.0	— 0.0	— 2.5	— 9.5
Netherlands	+ 6.1	—	— 9.4	—
Poland	— 5.8	— 1.4	— 26.9	— 20.4
Yugoslavia	— 4.5	— 0.3	— 16.1	— 12.8
	(c) — 12.6	—	(c) — 15.5	—
	(d) — 6.3	— 4.6	(d) — 29.1	— 14.9

a) Bureau of Agricultural Economics. — b) Bureau of Labor. — c) Products of the soil. — d) Animal products.

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER *

COUNTRIES AND CLASSIFICATIONS	August 1932	July 1932	June 1932	May 1932	April 1932	March 1932	August 1931	August 1930	Year	
									1931	1930
GERMANY (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of vegetable origin	108.6	116.6	118.3	121.2	122.4	121.6	114.6	124.0	119.3	115.3
Livestock	71.5	66.7	65.4	63.2	64.2	65.6	89.0	111.8	83.0	112.4
Livestock products	90.3	89.4	87.3	90.0	90.3	97.6	107.9	121.0	108.4	121.7
Feeding stuffs	90.5	94.2	93.8	96.1	99.7	99.0	98.3	100.4	101.9	93.2
Total agricultural products	91.0	92.5	92.1	93.4	94.7	96.5	103.4	116.6	103.8	113.1
Fertilizers 1).	68.5	67.7	71.5	70.7	71.7	72.2	72.8	79.1	76.5	82.4
Agricultural dead stock	115.1	115.5	116.0	116.4	117.0	117.2	129.9	139.4	130.7	139.4
Finished manufactures (* Gebrauchs- güter *)	114.3	116.0	117.3	118.8	119.9	121.5	139.7	158.2	140.1	159.3
General index-number	95.4	95.9	96.2	97.2	98.4	99.8	110.2	124.7	110.9	124.6
ENGLAND AND WALES (Ministry of Agriculture) Average of corresponding months 1911-13 = 100.										
Agricultural products	105	106	111	115	117	113	121	135	120	134
Feeding stuffs	97	94	94	97	99	102	77	99	83	96
Fertilizers	89	89	91	91	91	91	95	99	96	101
General index-number 2)	94.9	92.8	90.6	94.4	97.0	98.9	93.1	108.5	97.7	114.1
ARGENTINA 3) (Banco de la Nación Argentina) 1926 = 100.										
Cereals and linseed	62.9	60.4	59.8	59.9	61.3	63.1	53.7	87.2	55.8	82.3
Meat	70.1	71.5	73.7	74.5	73.8	71.8	98.7	115.3	94.3	109.2
Hides and skins	52.8	47.7	40.4	40.6	47.8	61.6	59.3	67.8	64.5	71.6
Wool	43.1	43.0	39.6	41.1	46.1	48.7	55.8	68.1	61.2	67.4
Dairy products	57.3	57.3	57.3	58.4	58.7	58.8	84.8	79.7	74.5	82.4
Forest products	61.6	63.3	66.3	66.3	66.3	78.3	91.6	106.9	99.3	107.9
Total agricultural products	61.1	59.2	58.3	58.6	60.4	63.1	62.6	88.9	63.8	85.9
CANADA 3) (Internal Trade Branch of the Dominion Bureau of Statistics) 1926 = 100.										
Field products (grain, etc.)	41.7	41.8	40.6	44.6	44.5	43.7	43.0	67.0	44.6	70.0
Animals and animal products	59.3	58.3	59.3	58.7	62.1	65.2	74.3	90.3	77.6	102.9
Total Canadian farm products	48.3	48.0	47.6	49.9	51.1	51.7	54.7	73.7	57.0	82.3
Fertilizers	72.4	72.0	72.0	70.5	71.4	72.0	86.8	91.5	83.0	88.2
Consumer's goods (other than foodstuffs, etc)	78.6	78.5	78.6	78.7	78.3	78.9	79.4	85.7	80.5	86.8
General index-number	66.8	66.6	66.6	67.7	68.4	69.1	70.9	83.7	72.2	86.6
ESTONIA (Central Bureau of Statistics) 1913 = 100.										
Commodities imported 4)	113	115	114	114	114	113	135	111	129	118
Commodities exported	51	53	53	56	62	68	78	104	76	103
Agricultural products imported and export- ed 4)	67	70	69	72	77	81	95	107	91	108

* For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication "Index-numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer" (Rome, 1930), as well as to pages 77 to 79 of the "Crop Report" of January 1932 and to page 517 of the "Crop Report" of July 1932.

1) From July 1932 new series — 2) Calculated by the "Statist", reduced to base-year 1913 = 100. — 3) Average data for the year 1931 are provisional. — 4) From January 1932 the price of rye is excluded from the calculations.

COUNTRIES AND CLASSIFICATIONS	August	July	June	May	April	March	August	August	Year	
	1932	1932	1932	1932	1932	1932	1931	1930	1931	1930
UNITED STATES										
(Bureau of Agricultural Economics)										
Average 1909-10 to 1913-14 = 100.										
Cereals	43	42	44	49	50	51	54	101	63	100
Fruits and vegetables	79	83	82	80	78	73	97	149	98	158
Meat animals	69	72	57	59	66	69	92	119	93	134
Dairy products	65	63	62	69	74	76	87	117	94	123
Poultry and poultry products	75	65	59	60	60	61	93	107	96	126
Cotton and cottonseed	51	41	37	42	46	50	53	94	63	102
Total agricultural products	59	57	52	56	59	61	75	108	80	117
Commodities purchased by farmers 1)	108	109	111	112	113	114	127	147	129	146
Agricultural wages 1)	—	...	—	—	94	—	a) 123	160	116	152
UNITED STATES										
(Bureau of Labor)										
1926 = 100.										
Grains	38.2	36.7	37.7	42.6	44.5	43.5	44.8	80.4	53.0	58.3
Livestock and poultry	52.8	54.1	46.7	44.4	49.2	51.4	67.0	84.6	63.9	89.2
Other farm products	50.8	48.4	48.2	49.6	51.2	52.1	67.3	86.7	69.2	91.1
Total farm products	49.1	47.9	45.7	46.6	49.2	50.2	63.5	84.9	64.8	88.3
Agricultural implements	84.9	84.9	84.9	84.9	85.0	85.0	94.5	94.9	94.0	95.1
Fertilizer materials	66.4	66.8	68.0	69.4	70.1	68.6	74.4	83.3	76.8	85.6
Mixed fertilizers	68.3	68.8	69.0	69.0	71.1	73.2	78.7	92.7	82.0	93.6
Cattle feed	47.4	42.2	42.1	45.9	53.4	52.4	50.8	104.8	62.7	99.7
Non-agricultural commodities	68.5	68.0	67.8	68.1	68.9	69.3	72.1	83.8	73.0	85.9
General index-number	65.2	64.5	63.9	64.4	65.5	66.0	70.2	84.0	71.1	86.3
FINLAND										
(Central Bureau of Statistics)										
1926 = 100.										
Cereals	86	88	88	89	89	92	76	74	77	76
Potatoes	71	93	73	69	69	69	84	68	68	76
Fodder	66	67	70	72	70	70	60	63	63	62
Meat	64	65	63	63	61	67	64	92	64	88
Dairy products	71	73	68	72	74	78	72	88	76	84
Total agricultural products	72	73	71	72	73	77	70	83	72	82
General index-number	89	89	87	88	89	92	81	89	84	90
HUNGARY										
(Central Bureau of Statistics)										
1913 = 100.										
Agricultural and livestock products	80	87	90	90	90	92	83	81	—	—
General index-number	89	94	96	97	97	99	92	93	—	—
ITALY										
(Consiglio Provinciale dell'Economia Corporativa di Milano)										
1913 = 100.										
National agricultural products	322.08	328.78	345.69	359.91	361.18	351.62	330.21	413.48	343.11	413.39
General index-number	300.06	299.93	304.22	312.54	318.79	322.14	331.42	402.58	341.57	411.04
NEW ZEALAND										
(Census and Statistics Office)										
Average 1909-13 = 100.										
Dairy produce	95.5	89.4	86.5	94.9	100.3	99.0	103.5	—	98.9	120.6
Meat	109.0	106.6	113.3	114.1	113.7	112.0	126.3	—	130.1	171.5
Wool	57.8	55.5	58.4	56.5	61.0	67.2	63.4	—	67.9	100
Other pastoral produce	57.9	59.0	50.9	59.0	69.6	70.7	76.5	—	76.7	124
All Pastoral and Dairy produce	85.8	82.2	82.7	86.5	90.7	91.5	96.3	—	96.5	127.5
Agricultural produce	83.1	84.8	105.5	111.2	113.5	112.8	102.6	—	115.5	126.7
All Pastoral, Dairy and agricultural produce	87.3	82.3	83.4	87.2	91.3	92.1	96.4	—	97.0	127.8

1) 1910-14 = 100. — 2) July.

COUNTRIES AND CLASSIFICATIONS	August	July	June	May	April	March	August	August	Year	
	1932	1932	1932	1932	1932	1932	1932	1930	1931	1930
NORWAY 1)										
(Kgl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals	118	124	125	125	123	123	112	125	112	112
Potatoes	86	144	150	155	151	150	170	117	130	150
Pork	87	90	84	86	85	88	91	95	96	86
Other meat	115	117	108	116	113	119	158	220	218	138
Eggs	85	78	67	69	70	81	87	118	108	96
Dairy products	125	123	122	119	119	123	126	157	156	129
Concentrated feeding stuffs	107	105	104	106	104	106	102	122	121	103
Maize	94	90	87	89	87	87	79	114	108	82
Fertilizers	89	89	89	88	89	89	85	102	105	90
NETHERLANDS										
(Directie van den Landbouw)										
Average 1924-25 to 1928-29 = 100.										
Products of the soil	49	51	49	56	56	56	61	76	42	(2) 72
Animal products	49	52	53	47	49	51	68	86	83	(2) 77
Total agricultural products	49	52	52	49	51	52	67	83	78	(2) 76
Agricultural wages	83	83	83	83	95	95	95	100	100	(2) 99
General index-number 3)	50.7	51.4	52.8	53.5	54.1	55.5	63.7	77.1	78.8	65.7
POLAND 4)										
(Central Bureau Statistics)										
1917 = 100.										
Products of the soil	43.7	47.3	54.6	62.3	61.7	57.1	47.7	56.4	56.7	53.9
Products of agricultural industry	59.1	61.2	65.7	71.6	71.5	67.1	62.1	70.2	78.4	65.9
Total products of plant origin	51.2	54.2	60.3	67.2	66.8	62.3	54.8	63.2	66.9	60.0
Animals	45.6	45.6	46.9	52.5	49.7	39.6	66.2	79.9	81.6	55.8
Dairy products	47.7	50.8	45.9	57.9	51.4	53.7	61.2	72.4	74.9	68.0
Total products of animal origin	46.8	48.2	46.8	55.2	50.8	45.6	64.2	76.5	78.6	60.8
Total agricultural products	48.9	51.2	53.7	61.4	59.0	54.1	58.3	68.2	71.3	59.7
Fertilizers	112.9	112.9	112.9	95.1	94.1	94.1	118.5	126.2	126.3	120.2
Industrial products	69.7	67.7	68.1	69.4	70.0	71.6	77.8	93.2	94.2	79.4
General index-number	60.2	60.4	61.8	66.1	65.3	63.8	69.0	81.8	83.8	70.5
YUGOSLAVIA										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Products of the soil	64.0	73.2	72.2	73.5	74.3	76.0	75.7	93.9	96.7	74.3
Animal products	53.6	57.2	55.0	53.5	53.6	55.0	75.6	96.7	97.7	72.2
Industrial products	63.4	63.4	63.4	65.0	66.2	68.3	70.8	79.7	8.02	71.4
General index-number	62.6	65.6	64.9	65.4	66.1	67.8	73.6	87.7	88.8	72.9

1) The agricultural years refer to the period April 1-March 31. — 2) Agricultural year July 1-June 30. — 3) Calculated by the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100. — 4) Average data for the year 1931 are provisional.

RATES OF FREIGHT

(Rates for full cargoes)

VOYAGES	16	9	2	26	AVERAGE			
	Sept.	Sept.	Sept.	August	August	Sept.	Sept.	Commercial
	1932	1932	1932	1932	1932	1931	1930	Season
								1931-32 1930-31
SHIPMENTS OF WHEAT AND MAIZE.								
Danube to Antwerp/Hamburg . . . (shill. per long ton)	14/-	14/-	n.14/-	n.13/6	13/7	14/11	15/-	14/6 13/11
Black Sea to Antwerp/Hamburg . . . (shill. per long ton)	9/6	9/4 1/2	9/4 1/2	9/4 1/2	9/4 1/2	11/1	11/9	10/10 10/10
St. John to Liverpool 1)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	1/7 1/6
Ports Churchill to United Kingdom	n.3/-	n.3/-	3/-	3/-	n.3/-	—	—	—
Montreal to United Kingdom	2/1 1/2	2/-	1/9	2/0.05 1/2	1/8 1/2	1/8	1/11	2) 0.08 1/10
Gulf to United Kingdom (shill. per 480 lbs.)	1/2/-	1/2/-	1/2/-	1/2/-	1/2/2	2/1	2/7 1/2	2/6 2/3
New York to Liverpool 1)	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/8 1/6
Northern Range to U. K./Continent	n. q.	n. q.	n. q.	n. q.	n. q.	1/7 1/2	n. q.	2) 0.09 1/9
North Pacific to United Kingdom (sh. per long ton)	3/n. q.	21/3	n. q.	n. q.	n. q.	2.00	22/11	n. 22/2 23/0
Vancouver to Yokohama 1) (gold \$ per sh. ton).	2.00	2.00	2.00	2.00	2.00	2.51	3.00	2.30 2.72
La Plata Down River 4) to U. K./Continent	15/-	15/-	13/3	n.13/-	13/1 1/2	16/4 1/2	15/4 1/2	16/- 16/4
La Plata Up River 5) to U. K./Continent	16/6	17/-	15/-	14/6	14/6	18/1	16/11	17/6 18/-
Karachi to U. K./Continent 6)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	19/8	n. q. 19/3
Western Australia to U. K./Continent	26/9	26/-	25/-	25/-	23/9	n.23/10	33/4 1/2	26/- 29/8
SHIPMENTS OF RICE.								
								1931 1930
Saigon to Europe (shill. per long ton)	25/6	24/9	24/6	1)23/6	23/7	n. q.	n.22/6	24/3 n. 18/11
Burma to U. K./Continent	23/9	23/-	22/6	22/6	n. q.	n. q.	n. q.	23/9 n. 17/8

1) Rates for parcels by liners. — 2) Freight in gold \$ per 100 lbs. (in the case of a loss of 25 % in the value of the shilling 10 \$ c. per 100 lbs. are equal to 2/8 per quarter). — 3) Vancouver-Shanghai gold \$ 2.35 p. short ton. — 4) "Down River" includes the ports of Buenos Aires and La Plata. — 5) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa-Fe and Paraná) are subject to an extra rate of freight. — 6) The original data being quoted in "scale terms", 10 % is added to arrive at rates per long ton.

EXCHANGE RATES

PERCENTAGE OF PREMIUM + OR OF LOSS (—) OF DIFFERENT CURRENCIES IN RESPECT OF THEIR PARITY WITH THE DOLLAR 1)

COUNTRY	Exchange	16 September 1932	9 September 1932	2 September 1932	26 August 1932
Germany	Berlin	—	0.4	—	0.4
Argentina	New York	—	39.3	—	39.3
Belgium	Brussels	—	0.4	—	0.3
Canada	New York	—	9.8	—	10.3
Denmark	Copenhagen	—	32.9	—	33.4
Egypt	London	—	28.7	—	28.7
Great Britain	London	—	28.7	—	28.7
France	Paris	—	0.0	—	0.1
Indo-China	Paris	—	0.0	—	0.1
Hungary	Budapest	—	0.0	—	0.0
India	London	—	28.0	—	27.7
Italy	Milan	—	2.5	—	2.6
Japan	New York	—	51.6	—	50.6
Netherlands	Amsterdam	—	0.1	—	0.2
Rumania	New York	+	1.2	+	1.2

1) The percentage represents the premium or the loss as far as possible on the national exchange. With the aid of the table of reciprocal parities of the currencies considered, given at the next page of this Crop Report, and the percentages indicated above, it is possible to obtain the reciprocal prices of the different currencies at the rates to which the quotations of the Monthly Crop Report refer.

Prof. ALESSANDRO BRIZI, Segretario generale dell'Istituto, Direttore responsabile.

RATES OF FREIGHT

(Rates for full cargoes)

VOYAGES	14	7	30	23	AVERAGE			
	Oct. 1932	Oct. 1932	Sept. 1932	Sept. 1932	Sept. 1932	Oct. 1932	Oct. 1930	Commercial Season
SHIPMENTS OF WHEAT AND MAIZE.								
Danube to Antwerp/Hamburg . . . (shill. per long ton)	n.14/-	n. 14/-	14/-	14/-	14/-	14/8	14/3	14/6
Black Sea to Antwerp/Hamburg . . . long ton)	10/-	9/9	10/-	9/9	9/7 1/2	11/5	11/4	10/10
St. John to Liverpool 1)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	1/7
Port Churchill to United Kingdom 2)	n. q.	n.3/-	n.3/-	n.3/-	n.3/-	n. q.	n. q.	1/6
Montreal to United Kingdom	2/-	2/1 1/2	2/1 1/2	2/1 1/2	2/-	2/4	1/10	0/08
Gulf to United Kingdom (shill. per 480 lbs.)	1) 2/-	1)2/-	1)2/-	1)2/-	1) 2/-	2/8	1) 2/7	2/6
New York to Liverpool 1)	1/6	1/6	1/6	1/6	1/6	1/9	1/6	1/8
Northern Range to U. K./Continent	n. q.	n. q.	n. q.	n. q.	n. q.	2/1	n. q.	0/09
North Pacific to United Kingdom (sh. per long ton)	4) n. q.	4) n.23/-	4) 23/-	4) 23/6	n.21/6	n.22/8	n.23/1	n. 22/2
Vancouver to Yokohama 1) (gold \$ per sh. ton).	2.00	2.00	2.00	2.00	2.00	2.35	3.10	2.30
La Plata Down River 5) to U. K./Continent	n. 12/-	13/-	15/-	14/-	14/5	17/5	13/2	16/-
La Plata Up River 6) to U. K./Continent	15/6	15/3	17/-	16/6	16/5	19/-	15/2	17/6
Karachi to U. K./Continent 7)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	18/6	n. q.
Western Australia to U. K./Continent	26/10 1/2	27/-	27/-	26/9	26/3	27/8	n.32/-	26/-
SHIPMENTS OF RICE.								
Saigon to Europe (shill. per long ton)	1) 27/-	n. q.	26/6	26/6	25/6	1) n.20/10	1) n.20/5	24/3
Burma to U. K./Continent	n. q.	n. q.	25/-	23/9	23/7	n. q.	n. q.	n. 18/11

1) Rates for parcels by liners. — 2) Insurances are not accepted for ships leaving Port Churchill after 15 October. — 3) Freight in gold \$ per 100 lbs. (in the case of a loss of 25 % in the value of the shilling 10 \$ c. per 100 lbs. are equal to 2/8 per quarter). — 4) Vancouver-Shanghai gold \$ 2.35 p. short ton. — 5) "Down River" includes the ports of Buenos Aires and La Plata. — 6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa-Fé and Paraná) are subject to an extra rate of freight. — 7) The original data being quoted in "scale terms", 10 % is added to arrive at rates per long ton.

EXCHANGE RATES

PERCENTAGE OF PREMIUM + OR OF LOSS (—) OF DIFFERENT CURRENCIES IN RESPECT OF THEIR PARITY WITH THE DOLLAR 1)

COUNTRY	Exchange	14 October 1932	7 October 1932	30 September 1932	23 September 1932
Germany	Berlin	—	0.4	—	0.4
Argentina	New York	—	39.3	—	39.3
Belgium	Brussels	—	0.1	—	0.4
Canada	New York	—	9.0	—	9.1
Denmark	Copenhagen	—	33.5	—	33.3
Egypt	London	—	29.2	—	29.0
Great Britain	London	—	29.2	—	29.0
France	Paris	+	0.1	+	0.0
Indo-China	Paris	+	0.1	+	0.0
Hungary	Budapest	—	0.0	—	0.0
India	London	—	28.6	—	28.4
Italy	Milan	—	2.7	—	2.5
Japan	New York	—	52.6	—	51.5
Netherlands	Amsterdam	—	0.0	—	0.1
Rumania	New York	+	1.2	+	1.2

1) The percentage represents the premium or the loss as far as possible on the national exchange. With the aid of the table of reciprocal parities of the currencies considered, given at the next page of this Crop Report, and the percentages indicated above, it is possible to obtain the reciprocal prices of the different currencies at the rates to which the quotations of the Monthly Crop Report refer.

**RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH ARE QUOTED THE PRICES IN
THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)**

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium	Canada United States	Denmark	Egypt	France Indo-China (2)	Great Britain	Hungary	India	Italy	Japan	Netherlands	Poland	Rumania	Czechoslovakia	Former Latin monetary union (3)
Germany	Reichsmark	1.000	0.561	8.566	0.238	0.889	4.819	6.080	0.979	1.362	0.653	4.526	0.478	0.593	2.123	39.825	8.040	1.235
Argentina	Paper peso	1.782	1.000	15.263	0.424	1.584	8.586	10.833	1.744	2.427	1.163	8.064	0.851	1.056	3.872	70.959	14.326	2.200
Belgium	Franc	0.117	0.065	1.000	0.028	0.104	0.563	0.710	0.114	0.159	0.076	0.528	0.056	0.069	0.248	4.649	0.939	0.145
Canada	Dollar	4.198	2.356	35.959	1.000	3.731	20.230	25.524	4.110	5.718	2.740	19.000	2.006	2.488	8.914	167.181	33.751	5.183
United States																		
Denmark	Crown	1.125	0.631	9.637	0.268	1.000	5.422	6.840	1.101	1.532	0.734	5.092	0.538	0.667	2.389	44.803	9.045	1.389
Sweden																		
Egypt	Piastre	0.207	0.116	1.777	0.049	0.164	1.000	1.262	0.293	0.283	0.135	0.939	0.099	0.123	0.441	8.264	1.668	0.256
France	Franc	0.164	0.092	1.409	0.039	0.146	0.793	1.000	0.161	0.224	0.107	0.744	0.079	0.097	0.349	6.550	1.322	0.203
Indo-China	Piastre (2)																	
Great Britain	Shilling	1.021	0.573	8.750	0.243	0.908	4.923	6.211	1.000	1.391	0.667	4.623	0.488	0.605	2.169	40.680	8.213	1.261
Hungary	Pengő	0.734	0.412	6.289	0.175	0.653	3.580	4.464	0.720	1.000	0.479	3.323	0.351	0.435	1.559	29.240	5.903	0.995
India	Ruppee	1.532	0.860	13.125	0.365	1.362	7.384	9.316	1.500	2.087	1.000	6.935	0.732	0.908	3.254	61.020	12.319	1.892
Italy	Lira	0.221	0.124	1.892	0.053	0.195	1.065	1.343	0.216	0.301	0.144	1.000	0.106	0.131	0.469	8.799	1.776	0.273
Japan	Yen	2.092	1.174	17.924	0.498	1.860	10.084	12.723	2.049	2.850	1.366	9.471	1.000	1.240	4.443	83.333	16.824	2.583
Netherlands	Florin	1.687	0.947	14.454	0.402	1.450	8.132	10.260	1.652	2.298	1.101	7.637	0.806	1.000	3.583	67.200	13.567	2.083
Poland	Zloty	0.471	0.264	4.034	0.112	0.419	2.269	2.863	0.461	0.641	0.307	2.131	0.225	0.279	1.000	18.755	3.786	0.581
Rumania	Leu	0.025	0.014	0.215	0.006	0.022	0.121	0.153	0.025	0.034	0.016	0.114	0.012	0.015	0.053	1.000	0.202	0.031
Czechoslovakia	Crown	0.124	0.070	1.065	0.030	0.111	0.599	0.756	0.122	0.169	0.081	0.563	0.059	0.074	0.264	4.953	1.000	0.154
Former Latin monetary union (3)	Gold Franc	0.810	0.455	6.938	0.193	0.720	3.903	4.925	0.793	1.103	0.529	3.666	0.387	0.480	1.720	32.258	6.512	1.00

(1) Each figure gives the equivalent in the currency of the country indicated at the head of the respective column of the currency unit indicated at the beginning of the respective line.
(2) 1 Gold piastre equals 10 francs. — (3) Data for purpose of comparison.

excessive accumulation of surpluses from preceding crops existing at the beginning of the season has, if account is taken of the decrease in European stocks, been diminished only to a very small extent.

PROSPECTS FOR THE 1932-33 SEASON.

I. — PRODUCTION.

The 1932 crop appears on the whole better than that of 1931, judging from the provisional data at present available, supplemented by approximate estimates for the few small producing countries for which official data for 1932 are not yet known.

World wheat production (1).

	(Million bushels)						
	1926	1927	1928	1929	1930	1931	1932
Europe	1,216	1,275	1,411	1,453	1,363	1,433	1,514
North America	1,249	1,371	1,492	1,128	1,290	1,235	1,187
South America	272	338	400	220	272	268	276
Asia (1)	382	393	342	382	458	408	397
Africa	110	118	118	135	118	132	132
Oceania	169	128	169	136	220	195	206
Totals	3,398	3,623	3,932	3,454	3,721	3,671	3,712
U. S. S. R.	915	797	808	698	988	..	..

(1) Excluding the U. S. S. R., China, Persia, Turkey and Iraq.

Experience shows that the preliminary estimates of the crop are generally rather conservative and that the final figures in the majority of instances exceed, sometimes very considerably, those available in October. It seems to us, however, that this year the items on either side of the balance between under- and over-estimates are this year more numerous and more important than usual and we are inclined to believe that the estimate of world wheat production at present available will show a much smaller difference from the final figures than in preceding years.

On the basis of the present estimates it may be said that the 1932 crop has been particularly large in the importing countries and especially in those of Europe, while it has been poor in the exporting countries as a whole.

II. — EXPORTABLE QUANTITIES.

All wheat exceeding the needs of internal consumption and of securing the essential normal carryover is considered as exportable. Consequently the exportable quantities represent the difference between total supplies (old crop stocks on 1 August + new crop) and internal needs (consumption + normal carryover).

In North America the total supplies of wheat in Canada and the United States for the present season are estimated at 1,705 million bushels (527 million stocks and 1,178 million 1932 production). The internal consumption of the two countries absorbed in the last two seasons 840-860 million bushels while in preceding years it only slightly exceeded 750 million. This increase is not due to the growth of human consumption which, according to the statistics of production of and commerce in flour, seems, on the contrary, to have fallen, but to the growing use of wheat for stock-feeding, a use favoured by the decrease in the production of other fodder cereals and by the low prices of wheat. This year the production of fodder cereals has been large both in Canada and the United States and prices have greatly declined while for wheat they remain at a level about the same as at the corresponding date in 1931. It is therefore probable that the consumption of wheat for stock-feeding will be greatly reduced this year in view of the large supplies of fodder cereals and of their price-levels. Taking this position into account it seems unlikely that the total consumption of Canada and the United States will maintain itself this year at the level of 840 million bushels attained last season. It is considered possible that the total consumption of the two countries may amount to 790 million bushels so that home requirements, taking account of a normal seasonal carry-over of 65 million, should be 855 million bushels. As the total supplies of wheat of the two countries are estimated at 1,705 million bushels, the exportable surplus for the current season should be 850 million bushels, composed of about 480 million of Canadian wheat and 370 million of United States wheat.

The new Argentine crop will not be ripe for another two months and it is evident that its magnitude can, at the moment, be only approximately judged. As is known, the area sown to wheat in Argentina has been considerably increased compared with last year, being estimated at 19.7 million acres against 17.3 million in 1931-32. The area that will not be harvested due to seasonal damage has on the average for recent years been about 8 % of that sown. Applying this coefficient of normal loss to the area sown this year, the area to be harvested would be 18.1 million acres. In September there occurred, however, a severe invasion of locusts in the northern part of the country which destroyed the wheat crop on about 600,000 acres. It is as well to admit, however, that the area harvested will be about 17.5 million acres. As the season has until now proceeded normally and as very beneficial rain fell at mid-October it seems probable, given a continuance of satisfactory conditions until the harvest, that a yield may be obtained a little above the average of recent years, which is 12.7

bushels per acre. On this basis it is estimated that the next Argentine crop will not differ much from the figure of 230 million bushels. It is superfluous to remark however that this forecast may deviate, perhaps considerably, from the actual results according to the favourableness or otherwise of conditions from now until harvest. The 230 million bushels of the new crop will leave an exportable surplus of about 150 million bushels, which, together with the 39 million of old crop stocks remaining in the country on August 1, will give a total quantity exportable during the 1932-33 season of about 190 million bushels.

In Australia, due to the increased area sown and the favourable course of the season, a large production is in prospect. A telegram dated October 17 from the Australian Government gives a forecast of 200 million bushels, exceeding last year's production by 11 million and the average of the five preceding years by 44 million. The exportable surplus of the new crop, taking account of home requirements, will be about 150 million bushels. The stocks of old crop in existence on 1 August 1932 were 31 million bushels. The total quantities exportable from Australia in 1932-33 of the old and new crops may consequently be estimated at 180 million bushels.

India in March-April of this year obtained a crop hardly sufficient to cover home requirements. It is not very likely that India will figure on the international market with quantities of any importance during the current season.

As regards the U. S. S. R., no official data of production are available either for this year or last. Seasonal conditions have been nearly normal for winter wheat but rather unfavourable for spring wheat. It is believed that the total wheat production is smaller than that of 1931, which permitted an export of 68 million bushels. During the period from 1 August to the end of September this year the U. S. S. R. shipped abroad 6 million bushels whereas in the same period of last year 40 million of wheat had already been exported. It seems probable that the reduction of Russian exports during this period may be attributed on the one hand to the difficult situation of food supplies in the country during the months preceding harvest, necessitating a more prudent control of the export of food, cereals, and on the other hand to the size of the crop, which is smaller than that of 1931 and does not permit a large export. In the absence of reliable information it may be considered that Russian shipments will this year be on a much smaller scale than during last season and will, in contrast, be more widely distributed over the year and more regular and continuous. It is believed that shipments will only with difficulty exceed a total of 30 million bushels with a decrease of 38 million compared with the 1931-32 season.

In the Danubian countries wheat production in 1932 is one of the smallest recorded during the post-war period due to the decrease in area sown, to the bad season and to rust, which have together caused grave damage. In comparison with the 368 million bushels obtained in 1931, production this year shows a decrease of one-third. It will not therefore permit any export of importance without compromising the home supplies of this group of countries. Happily the maize crop, which serves as foodstuff for large sections of the population of this region, has this year been very heavy, a fact which will certainly bring about a larger consumption of this cereal in substitution for wheat.

It is consequently probable, despite the low level of production and the exhaustion of stocks, that these countries and particularly Hungary, may still in the current season export some wheat although in very moderate quantities, which may be calculated at 10 million bushels against the 81 million exported in 1931-32.

In the three exporting countries of North Africa crop results have been satisfactory in Algeria and Tunis but mediocre in Morocco. The exportable surplus of these crops is absorbed almost exclusively by France, which imports the largest proportion during the months June to August as the African harvest takes place two or three months earlier than that of France. The exportable surplus of the 1932 production has already been in large part placed on the French market during the last two months of last season; the remainder is only small. An estimate should now be made of the quantities to be exported by these countries to France during the months June-July 1933 and to be deducted from the crops to be harvested at this period of next year. It is not easy to form a judgment for such a distant period; it seems, however, that the possibilities of marketing in France are much smaller this season due to the abundance of the French crop, which largely suffices to cover the entire home requirements. Wheat prices in France have, in fact fallen sharply since the harvest and are no longer so advantageous for colonial wheat as in the past season, during which 22 million bushels were exported to France. It consequently seems reasonable to consider that the quantities exportable from North Africa in 1932-33 will necessarily be reduced to a moderate quantity which may be estimated at 10 million bushels.

Lastly, the quantities of wheat afloat at the beginning of the season are estimated at 30 million bushels, a decrease of 8 million compared with last season.

Summarising, the quantities of wheat which may be placed at the disposal of the importing countries during the current season compared with those in preceding seasons may be estimated as follows:

Exportable quantities of Wheat.

	(Million bushels)					Forecast	
	1926/27	1927/28	1928/29	1929/30	1930/31	1931/32	1932/33
Canada	338	404	514	310	400	334	480
U. S. A.	272	272	349	382	371	456	370
Argentina	195	250	323	187	184	176	190
Australia	129	96	136	100	202	188	180
U. S. S. R.	40	0	0	10	114	68	30
India	11	8	0	0	0	0	0
Danubian Countries	44	31	35	53	44	81	10
North Africa	0	10	14	15	15	22	10
Afloat	39	46	45	37	39	38	30
Totals	1068	1,117	1,416	1,094	1,369	1,363	1,300

The total quantity exportable during the current season shows, on the basis of the data at present available, a considerable reduction compared with the past season. Among the various exporting countries only Canada shows a really considerable increase of exportable surplus, whereas in the other countries the quantities are either nearly equal to those of last season, as in the two exporting countries of the southern hemisphere, or much smaller, as is the case in the United States, the U. S. S. R. and the Danubian and North African countries.

III. — REQUIREMENTS OF THE IMPORTING COUNTRIES.

Europe, which is known to be the most important market of the countries producing a surplus of wheat, has this year obtained a production which, according to the preliminary figures, promises to be the largest so far recorded. The countries which were, until only a few years ago, among the best customers of the overseas countries, have this year harvested exceptionally heavy crops. Italy has, according to the latest estimate published towards the end of September, harvested 276 million bushels of wheat, a quantity representing a record for the country, obtained on an area nearly equal to the average and in a not at all favourable season. Italy will therefore be in a position to meet home requirements independently unless the mediocre quality of the crop in certain areas of the country due to rust and the exhaustion of reserves of the old crop at the end of the season again necessitate a recourse to imports for, however, very moderate quantities. In France wheat production in 1932 was so abundant that prices fell 25 % in two months and the Government, in order to check this movement has quite recently provided that a part of the new production, estimated at 22 million bushels, shall be retained in the form of permanent stocks to be carried over into subsequent seasons. In Germany production of wheat has reached a record level and that of rye is the largest obtained in the postwar period with the exception of the 1928 crop, which was a little larger. Germany has consequently to a large extent assured supplies for home requirements. Spain and Portugal have also obtained good crops more than sufficing to cover home consumption. The northern countries of Europe, the United Kingdom, Belgium, Denmark, the Netherlands and the Baltic and Scandinavian countries also announce abundant crops. The countries of Eastern Europe, namely, Poland, Hungary, Bulgaria, Rumania and Yugoslavia have, on the contrary, obtained a very poor crop due to the reduction in the area sown to wheat and to the damage caused by rust. The excellent results obtained in the remainder of Europe permit, however, the attainment for the whole of the continent of a crop exceeding by about 81 million bushels that of 1931 and by nearly 180 million, the average of 1926 to 1930. If the estimates at present available are confirmed the production in 1932 will be the largest ever obtained in Europe.

This large production gives rise to the question of how much wheat can be absorbed by the consumption of Europe and how much it will be necessary to draw from overseas markets during the current season.

According to this year's crop results the European importing countries may be classed in four groups :

(a) Countries the production of which in 1932 exceeds home requirements to an extent permitting them to retain as stocks a part of the new crop ; these countries are Germany, Spain, France, Portugal and Sweden. The net import of these countries as a whole in 1931-32 was 117 million bushels.

(b) Countries having a production this year nearly covering home consumption and which will therefore import much smaller quantities than last season ; these countries are Estonia, Italy, Latvia, Lithuania and Czechoslovakia. The imports of this group in 1931-32 were 59 million bushels.

(c) Countries having a production which covers a large part of their home requirements and in which the increase in production in 1932 will considerably reduce the need for imports : these countries are Austria, Denmark, Greece and the Netherlands. The total imports of these countries in 1931-32 amounted to 84 million bushels.

(d) Countries having a production covering only a small part of home requirements and for which the increase in production in 1932 cannot influence imports except to a very moderate extent. These countries are the United Kingdom, Belgium, Finland, Norway and Switzerland. The total import of this group of countries in 1931-32 was about 338 million bushels.

Summarising, it may be roughly estimated that the imports of the European countries during the current season will be nil for group (a); reduced by 50 % compared with 1931-32, that is, to 30 million bushels, for group (b); reduced by a third, that is, to 55 million bushels, for group (c); nearly unchanged, namely about 330 million bushels, for the countries of group (d). This would therefore result in a total of 415 million bushels for all of the European importing countries, a quantity which would suffice, on the hypothesis of a consumption nearly equal to that of last season. It is believed, however, that this estimate will turn out to be too low, since it does not take account of the quality of the 1932 crop, which was not so good as last year, of the growth of consumption relative to the increase in population, or of the necessity for a replenishment of normal stocks in some countries. It seems, however, that an estimate of 440 million bushels should more closely approach reality. This import would be the smallest ever recorded in Europe except during the war ; but, in the present general economic situation, taking into consideration the unprecedented difficulties of international trade and taking account also of the concomitant large European crops of wheat, rye, maize and potatoes, it appears very unlikely that imports will considerably exceed the quantity forecast. Of this quantity of 440 million bushels to be furnished by the exporting countries, about 40 million may be shipped by the U. S. S. R. and the Danubian countries and 400 million by the overseas surplus-producing countries. In the following table are given the final estimates of wheat production for recent years, of the movement of trade and of the resulting apparent consumption compared with the preliminary forecasts for the current season.

Production and apparent consumption of wheat in Europe.

	Importing Countries			Exporting Countries (1)			Total Europe		
	Production	Net import	Apparent consumption	Production	Net exports	Apparent consumption	Production	Net imports	Apparent consumption
	(Million bushels)								
1925-26	1,110	518	1,628	294	40	254	1,404	478	1,882
1926-27	922	654	1,576	294	44	250	1,216	610	1,826
1927-28	1,002	650	1,652	272	31	241	1,274	619	1,893
1928-29	1,041	653	1,694	367	36	331	1,408	613	2,021
1929-30	1,145	510	1,655	302	54	248	1,447	456	1,903
1930-31	1,010	610	1,620	352	46	306	1,362	564	1,926
1931-32	1,064	600	1,664	368	81	287	1,432	519	1,951
1932-33 (Porec.)	1,270	440	1,710	248	10	238	1,518	430	1,948

(1) Bulgaria, Hungary, Rumania, Yugoslavia.

Extra-European countries. — In the absence of complete data concerning the seasonal trade of the majority of these countries we are obliged to have recourse to an indirect calculation, of which the details are given in the appendix, in order to calculate their import. It appears from this calculation that this amount has fluctuated in recent years between 160 and 200 million bushels, with a maximum of 240 millions in 1928-29 coinciding with the considerable purchases made at that time by several countries that are normally exporters (India, Turkey, Poland, the U. S. S. R.), which, due to bad domestic crops, were obliged to meet their needs to an exceptional extent from outside sources. Last year it was expected that under the influence of various factors and especially of the low price there would be a considerable increase in wheat consumption in this group but results at the end of the season reveal that this increase did not, for reasons already mentioned, occur. For the current season we see no factors that would lead us to expect an extension of demand for wheat on the part of this group of countries. The level of wheat prices on the world market continues to be low but there is no indication that the purchasing power of these countries will increase, especially as the shackles on international trade instead of being lightened have increased in weight.

Only in China and in Mexico perhaps can a better demand be expected in view of the very poor crops in these countries, while for the other large importing markets the present economic distress gives no hope of any growth in demand, all the more so since several of them, for example Egypt and Japan, have had better wheat crops than in 1931. In Japan there is also a large increase in the rice crop. We are therefore of the opinion that in the current season the import into extra-European countries will at the most attain 190 million bushels, which would mean a decrease of 14 million with respect to the demand of last season.

World requirements. — Summarizing, the total quantities necessary to meet the needs of importing countries during the 1932-33 season should be about 440 million bushels for Europe and 190 million for extra-European countries, that is, in all about 630 million bushels.

IV. — SUPPLY AND DEMAND SITUATION OF WHEAT

The statistical position in the current wheat season as appears from the preliminary estimates now available, which are grouped in the table below is characterized by the following facts.

Production, Trade and Stocks of Wheat.

	(Million bushels)						Forecast
	1926/27	1927/28	1928/29	1929/30	1930/31	1931/32	1932/33
World Production (excluding U. S. S. R.) (1)	3,398	3,023	3,932	3,454	3,721	3,671	3,712
Production of the U. S. S. R.	915	797	808	698	988	...	...
Production of the exporting countries (2)	2,308	2,426	2,708	2,099	2,536	3,512	2,208
Production of the importing countries.	1,090	1,197	1,224	1,355	1,185	1,159	1,444
Exportable supplies (excluding the U. S. S. R.)	1,030	1,110	1,420	1,080	1,256	1,292	1,270
Exportable supplies of the U. S. S. R.	40	0	0	10	114	68	30
Total exportable supplies	1,068	1,117	1,416	1,094	1,369	1,363	1,300
Total Exports	827	810	927	628	819	800	(1) 630
Exportable Stocks at end of season (3)	240	310	490	470	550	570	670

Prices — Hard winter, No 2, spot, cents per bushel at Chicago.

Minimum price	130 ³ / ₄	123 ¹ / ₂	98	87 ¹ / ₂	50	47 ³ / ₄	...
Maximum price	153	168 ¹ / ₂	143	136 ¹ / ₂	96 ¹ / ₂	68	...
Average annual price	141 ¹ / ₂	137 ¹ / ₂	119 ¹ / ₄	114 ¹ / ₂	78	54 ³ / ₄	...

(1) Not including production of China, Persia, Turkey and Iraq. — (2) Canada, United States, Argentina, Australia, India, Bulgaria, Hungary, Rumania, Yugoslavia, Algeria, Morocco and Tunis. — (3) Stocks in exporting countries and afloat, less normal carry-over. — (4) Probable requirements of the importing countries.

World production in 1932, excluding the U. S. S. R., is larger, though only to a small extent, than last year and also, but more so, than the average for the five years 1926-30. The production of the U. S. S. R., for which estimates are lacking, is not large and seems considerably below that of last year. In general the exporting countries appear to have had a crop much smaller than in 1931, the importing countries the maximum so far obtained. The diminution in the total crop of the exporting countries is due exclusively to unfavourable weather, which reduced unit-yields, the area on which the crop has been or will be harvested being, on the contrary, 3 million acres greater for these countries as a whole. The increase in the production of the importing countries is due in small part to the increase in area and almost entirely to favourable weather, which allowed very high yields per acre to be obtained.

World exportable supplies, taking into account the very heavy stocks existing at the beginning of the season, are inferior to those of 1931 by 60 million bushels, due to the poor crop obtained by the exporting countries; they are estimated at 1,300 million bushels, of which 570 millions are old crop stocks and 730 millions new crop surplus.

The probable requirements of the importing countries are on the other hand much smaller than in 1931-32; a decrease of 160 million bushels is expected in the European demand, due both to the excellent wheat crop and to the abundant production of rye, maize and potatoes as well as to the stricter regulation of international trade in wheat enforced by an increasing number of producing countries. A reduction of 14 million bushels is also expected in the demand from extra-European countries, due especially to the general economic situation, which reduces international trade and hinders its transactions. On the whole world import needs are estimated at 630 million bushels, a decrease of 170 million with respect to last year.

Comparing the requirements of the importing countries (630 million bushels) for the current season with the exportable supplies of the surplus-producing countries it appears that the old crop exportable stocks existing on 1 August 1932 (570 million bushels) are adequate to meet nine-tenths of the needs of importers. It follows that almost the entire world exportable surplus from the 1932 crop, namely 670 out of 730 million bushels, will be carried over at the end of the season for consumption in 1933-34.

On the basis of these data it may be concluded that the exportable stocks which at the beginning of the season had attained 570 million bushels, a total representing the heaviest accumulation of surpluses so far recorded, will this season undergo a further and very considerable increase, estimated at 100 million bushels. It is to be hoped that within a short time the general economic situation of the world may improve and that international trade may regain its normal movement so that the formation of such a heavy burden of stocks, which, without taking into account the 65 million bushels considered as a normal carryover in North America, would by the end of the season reach the unprecedented figure of 670 million bushels, may be prevented.

G. CAPONE.

APPENDIX

In the following notes are given the detailed data on which the estimates contained in the present study are based.

I. — EXPORTABLE STOCKS REMAINING FROM PREVIOUS PRODUCTION.

The exportable stocks residual from the previous production in existence on August 1, 1932 compared with those for the preceding five seasons have been calculated, for the four large exporting countries only, in the manner indicated below. The stocks in existence in the other exporting countries are excluded because there is an absence of data for exactly estimating them and also because normally the variations in these stocks from year to year are of negligible importance.

CANADA. — Official statistics record the subjoined estimates of residual stocks of wheat and flour in Canada on August 1. In addition to these stocks there must also be taken into account those of Canadian grain admitted free into the United States and lying there on August 1. They amounted to the following quantities in million bushels.

	1927	1928	1929	1930	1931	1932
In Canada	51	78	104	111	134	131
In U. S. A.	5	14	24	17	6	5
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Total Stocks . . .	56	92	128	128	140	136
Less minimum carry-over	9	9	9	9	9	9
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Exportable Stocks . . .	47	83	119	119	131	127

UNITED STATES. — The official statistics record the stocks of home grown wheat in the United States on July 1. In addition to these stocks there must also be taken into account those of U. S. A. grain admitted free into Canada and lying there on July 1. These were as follows in million bushels.

Stocks	1927	1928	1929	1930	1931	1932
On farms	27	23	45	47	32	72
In interior mills and elevators . . .	22	19	42	60	30	42
Commercial wheat in store	21	39	90	109	204	168
In merchant mills and elevators . . .	37	32	48	47	22	64
In transit to merchant mills	11	11	16	15	12	10
Stored for others by merchant mills . . .	...	...	...	13	18	7
Flour in terms of wheat	18	18	19	18	14	16
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Total . . . (1)	140	150	270	309	332	379
U. S. A. wheat in bond in Canada . .	1	2	3	4	15	16
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Total U. S. A. wheat Stocks . . .	141	152	273	313	347	395

(1) Raised to represent all items and rounded.

The minimum carry-over from one season to another may be estimated, taking as basis one-twelfth of the annual consumption, at about 55 million bushels. To bring the stocks referring to July 1 to date as on August 1, the exports from the United States during July have been deducted. This process is not perfect but there is no means of making a more exact calculation. The exportable stocks as on August 1 of each year are therefore as follows, in millions of bushels:

	1927	1928	1929	1930	1931	1932
Total stocks on 1st July	141	152	273	313	347	395
Less minimum carry-over	55	55	55	55	55	55
Less exports of July	11	5	12	15	15	4
Exportable stocks on 1st August . .	75	92	206	243	277	336

ARGENTINA. — Taking into account exports and stocks on 1 January, the exportable stocks on 1 August of each year were as follows in million bushels

	1927	1928	1929	1930	1931	1932
Exportable stocks	49	68	102	36	60	39

AUSTRALIA. — Exportable stocks on 1 August, according to information received by the Australian Government, are indicated below in million bushels. It should be noted that the figure for 1 August 1931 (33 million bushels) was underestimated by about 15 million in relation to the actual exports and has been correspondingly modified.

	1927	1928	1929	1930	1931	1932
Exportable stocks	28	27	29	40	48	33

II. — CONSUMPTION OF THE EXPORTING COUNTRIES.

In the following tables are given for each country the data on which the figures of home consumption in the four large exporting countries have been based.

NORTH AMERICA. — On the basis of the official data of production, commerce and stocks, wheat consumption in Canada and the United States in recent seasons may be calculated as follows in million bushels. For Canada the figure of production in 1931, having been officially admitted to be an underestimate, has been adjusted by the addition of 18 million bushels.

Canada

	1927/28	1928/29	1929/30	1930/31	1931/32
Production	480	567	305	421	322
+ Interior Stocks at 1st August	51	78	104	111	134
= Available supplies at 1st August	531	645	409	532	456
— Season's exports	331	404	184	258	206
— Interior Stocks at 31st July	78	104	111	134	131
= Consumption	122	137	114	140	119

United States

	1927/28	1928/29	1929/30	1930/31	1931/32
Production	875	926	812	858	894
+ Interior Stocks on 1st July	140	150	270	309	332
= Available supplies at 1st July	1,015	1,076	1,082	1,167	1,226
— Season's exports	193	145	143	115	126
— Interior stocks on 30 June.	150	270	309	332	379
= Consumption	672	661	630	720	721

ARGENTINA. — Based on official data, the consumption in the last five years is estimated as follows:—

	1927	1928	1929	1930	1931
Million bushels.	74	77	86	86	90

AUSTRALIA. — Based on official data for production and trade the consumption in the last five years is estimated as follows.

	1927	1928	1929	1930	1931
Million bushels.	44	50	51	55	55

III. — EXPORTS.

The quantities of wheat (and flour reduced to the corresponding equivalents in grain) exported during the last five grain seasons (August 1–July 31) from all the principal exporting countries are given in the following table. The data refer to net exports, that is, exports less imports.

World wheat exports.

Country	1927/28	1928/29	1929/30	1930/31	1931/32
Canada	323	395	191	268	208
United States	182	148	140	93	120
Argentina	177	222	151	124	139
Australia	69	107	61	151	154
India	8	(1) 25	0	(1) 5	2
Bulgaria	2	1	(1) 1	6	11
Hungary	21	25	29	18	18
Poland	(1) 8	(1) 3	0	4	3
Rumania	7	1	3	16	37
Yugoslavia	1	9	23	6	15
Turkey and Iraq	4	(1) 6	0	1	3
Algeria	5	4	5	10	6
Tunis	1	5	6	6	8
Morocco	4	5	4	1	8
Chile and Uruguay	5	5	5	1	0
Totals	809	927	618	705	732
U. S. S. R.	1	(1) 5	10	114	68
World Exports	810	927	628	819	800

(1) Net imports, not included in the totals.

Taking account, however, of the fact that for several years part of the exports from Canada and the United States has not actually been shipped overseas but has passed from one to the other of these countries to remain in store at its destination, there has been deducted from the total exports above indicated, the amounts of which are increased from the beginning to the end of each season, the stores of Canadian wheat in the United States and those of United States wheat in Canada. On the other hand the inverse operation has been carried out when the amounts stored have decreased.

IV. — IMPORTS AND APPARENT CONSUMPTION OF EUROPE.

The data of production, net imports and exports and apparent consumption of the various European countries, grouped as importing and exporting countries respectively, are given in the following table together with the preliminary estimates of production for 1932. The figures for wheat include flour reduced to its equivalent in grain.

Production and apparent consumption of Europe.

COUNTRIES	Production in 1929	Imports 1929-30	Apparent Consumption 1929-30	Production 1930	Imports 1930-31	Apparent Consumption 1930-31	Production in 1931	Imports 1931-32	Apparent Consumption 1931-32	Production in 1932
(Million bushels)										
<i>A. — Importing countries :</i>										
Germany	123	48	171	139	31	170	155	23	178	186
Austria	12	19	31	12	16	28	11	14	25	13
Belgium and Luxemburg	13	42	55	14	49	62	14	46	60	16
Denmark	12	8	20	10	11	21	10	17	27	...
Spain	154	3	157	147	0	147	134	5	139	178
Estonia	1	1	2	2	1	3	2	0	2	2
Finland	1	6	7	1	5	6	1	4	5	1
France	337	11	348	228	61	289	264	79	343	331
Gr. Brit. and N. Ireland	50	205	255	42	225	267	38	240	278	43
Greece	11	22	33	10	24	34	11	24	35	19
Irish Free State	1	17	18	1	19	20	1	20	21	...
Italy	260	42	302	210	81	291	245	33	278	276
Latvia	2	2	4	4	2	6	3	1	4	5
Lithuania	9	0	9	11	1	10	8	0	8	9
Norway	1	7	8	1	8	9	1	8	9	1
Netherlands	5	30	35	6	35	41	7	29	36	14
Poland	66	0	66	82	1	78	83	1	80	56
Portugal	11	7	18	14	3	17	13	3	16	18
Sweden	19	7	26	21	5	26	18	7	25	26
Switzerland	4	16	20	4	18	22	4	21	25	4
Czechoslovakia	53	13	66	51	17	68	41	25	66	54
Other countries	—	4	4	—	4	4	—	4	4	—
<i>Totals</i>	<i>1,145</i>	<i>510</i>	<i>1,655</i>	<i>1,010</i>	<i>610</i>	<i>1,620</i>	<i>1,064</i>	<i>600</i>	<i>1,664</i>	<i>2) 1,270</i>
<i>B. — Exporting countries :</i>										
Bulgaria	32	3)+ 1	33	57	1)— 6	51	61	1)— 11	50	51
Hungary	75	1)— 29	46	84	1)— 18	66	73	1)— 18	55	59
Rumania	100	1)— 3	97	131	1)— 16	115	135	1)— 37	98	73
Yugoslavia	95	1)— 23	72	80	1)— 6	74	99	1)— 15	84	65
<i>Totals</i>	<i>302</i>	<i>1)— 54</i>	<i>248</i>	<i>352</i>	<i>1)— 46</i>	<i>306</i>	<i>368</i>	<i>1)— 81</i>	<i>287</i>	<i>248</i>
GENERAL TOTAL	1,447	456	1,903	1,362	564	1,926	1,432	519	1,951	2) 1,520

(1) Exports. — (2) Partly estimated. — (3) Imports.

V. — NON-EUROPEAN IMPORTS.

The imports of non-European countries are calculated in a somewhat approximate fashion by taking the difference between aggregate exports and imports of European countries and also the quantities afloat at the beginning and end of each season. It should be observed that the calculations do not make any allowance for loss in weight during transit or from handling at shipment and at discharge, for the consequences of sea accidents or for quantities consumed by crews and passengers. Thus the actual shipments to non-European countries are certainly below the quantities indicated by the following calculations. It may however, be assumed that the quantities which fail to reach their destination do not vary much from year to year, so that the procedure adopted may be adjudged generally as sufficiently exact.

The data forming the basis of this calculation are given below in million bushels.

	1927/28	1928/29	1929/30	1930/31	1931/32
World exports (including U. S. S. R.)	810	927	628	819	800
+ Quantity afloat at the beginning of the season .	46	45	80	39	38
— Quantity afloat at the end of the season . . .	45	80	39	38	31
= World imports	812	892	669	820	807
— Quantity imported into European countries.	651	653	510	614	603
= Quantity imported by non-European countries	161	239	159	206	204

It should be noted that the quantity afloat on August 1, 1929 was really 37 million bushels and not 80 million. It has been considered opportune to make this modification in the above estimate since at the beginning of August 1929 large quantities of wheat exported to Europe and having reached their destinations had not yet been recorded in the import statistics.

CEREALS

Germany : The mostly dry and sunny weather during September favoured harvesting. Preparatory field work for the winter sowings began in practically all districts during the first half of September but was hindered by the hardness of the soil. The first winter sowings have come up well.

Austria : Towards the middle of September showers fell in places but did not furnish much moisture. The sky remained nearly always serene and temperature reached a very high level. Winds enhanced the unfavourable effects of the drought. Temperature fell, especially at night, only at about September 20. Precipitation remains insufficient. In various regions there was a marked lack of moisture.

Harvesting of spring cereals has everywhere been effected under good conditions.

The great drought has so hardened the soil, particularly in the plains and hilly areas of the North and Southeast of the country, that preparatory work for the winter sowings has become extremely difficult. In these important cereal producing regions, the winter cereal sowings are very backward, whereas in the mountainous regions they have been effected normally. Germination of the early sowings is slow and irregular.

Belgium : The weather at the beginning of September was warm, then cold days alternated with warm weather often accompanied by heavy showers which furnished the soil with the necessary moisture. On the whole, September was a favourable month for agriculture. It is reported that in Hesbaye and in the better lands of eastern Flanders, the average wheat yields vary between 23-27 centals (39-45 bushels) and those of oats between 29-36 centals (89-112 bushels) per acre. The land destined for the winter cereal sowings has been prepared under good conditions and sowing has begun.

Bulgaria : According to the latest estimate the meslin area this year was 222,000 acres, showing a decrease of 12.7 % on that of last year (254,000 acres) and a decrease of 8.7 % on the average of the five years ending 1930 (243,000 acres). Production this year according to same estimate is 2,097,000 centals (3,616,000 bushels), showing a decrease of 31.4 % on that of last year, 3,056,000 centals (5,269,000 bushels), and a decrease of 11.5 % on the average of the five years ending 1930, 2,369,000 centals (4,084,000 bushels).

The area of spelt this year was 27,000 acres, showing a decrease of 1.6 % on that of last year (27,000 acres) and an increase of 14.6 % on the average of the five years ending 1930 (23,500 acres). Production this year is 322,000 centals, showing an increase of 6.6 % on that of last year (302,000 centals), and increase of 67.3 % on the average of the five years ending 1930, (192,000 centals).

Spain : The preparatory work for the winter cereal sowings has so far been effected under good conditions because in most provinces rainfall was abundant at the end of September and in the first few days of October.

Estonia : During the work of threshing of wheat, the weather was very satisfactory. The decrease in spring wheat production is due particularly to the reduction in area and to unfavourable weather conditions.

The preparatory work for the winter crops was favoured by good weather conditions and the sowings themselves were effected in excellent conditions so that the crop condition of wheat may be judged to be excellent.

Cereals.

COUNTRIES	†) AREA					†) PRODUCTION								
	1932	1931	Average	% 1932		Average 1926 to 1930	1932	1931	Average	1932	1931	Average	% 1932	
	1932/33	1931/32	1926 to 1930	1931	1932/33		1932/33	1931/32	1926 to 1930	1932/33	1931/32	1926 to 1930	1931	1932/33
			1926/27 to 1930/31	1931/32	Aver.				1926/27 to 1930/31			1926/27 to 1930/31	1931/32	Aver.
	1,000 acres						1,000 centals			1,000 bushels				
WHEAT.														
Germany	5,634	5,356	4,181	105.2	134.8	111,750	93,329	74,380	186,247	155,545	123,964	119.7	150.2	
Austria	536	517	508	103.7	105.5	7,804	6,605	6,946	13,007	11,009	11,576	118.2	112.4	
Belgium	391	381	384	102.4	101.7	9,060	8,291	8,731	15,099	13,817	14,551	109.3	103.8	
Bulgaria	3,077	2,964	2,754	103.8	111.7	30,332	36,718	26,200	50,553	61,195	43,666	82.6	115.8	
Spain	11,189	11,245	10,786	99.5	103.7	107,102	80,657	85,802	178,499	134,426	143,001	132.8	124.8	
Estonia	128	99	74	129.0	173.3	1,147	1,043	707	1,912	1,738	1,178	110.1	162.4	
Finland	50	47	40	106.8	126.6	743	696	554	1,238	1,161	923	106.7	134.1	
France	13,235	12,840	13,052	103.1	101.4	198,818	158,473	162,547	331,357	264,116	270,906	125.5	122.3	
Engl. and Wales	1,288	1,197	1,460	107.6	88.2	24,371	21,532	28,378	40,619	35,887	47,296	113.2	85.9	
*Scotland	52	50	57	104.9	92.7	...	1,075	1,335	...	1,792	2,225	...	...
*N. Ireland	3	3	5	107.8	65.0	...	64	112	...	106	187	...	...
Greece . . . . .	...	1,496	1,300	...	...	11,685	6,737	7,152	19,474	11,228	11,920	173.4	163.4
Hungary	3,897	4,011	3,953	97.2	98.6	35,137	43,531	49,246	58,561	72,550	82,075	80.7	71.4	
Italy	12,237	11,884	12,083	103.0	101.3	165,679	146,872	133,831	276,127	244,782	223,048	112.8	123.8	
Latvia	255	215	151	118.8	168.7	3,051	2,033	1,607	5,084	3,388	2,679	150.1	189.8	
Lithuania	514	478	401	107.4	128.1	5,615	5,004	4,372	9,359	8,340	7,287	112.2	128.4	
Luxemburg	22	23	30	97.8	73.9	298	244	331	496	407	551	122.0	90.0	
Malta	10	10	9	99.2	103.9	181	166	179	301	277	298	108.6	101.0	
Norway	28	29	27	97.0	103.1	471	355	415	785	592	692	132.7	113.4	
Netherlands	293	192	137	152.2	212.9	8,217	4,051	3,660	13,694	6,751	6,100	292.9	224.5	
Poland	4,206	4,495	3,477	93.6	121.0	33,534	49,933	38,519	55,888	83,220	64,197	67.2	87.1	
Portugal	1,271	1,082	...	...	...	10,883	7,799	6,262	18,138	12,999	10,437	139.5	173.8
Rumania	7,043	8,566	7,625	82.2	92.4	44,093	81,181	66,443	73,486	135,299	110,736	54.3	66.4	
Sweden	747	683	544	109.4	137.2	15,499	10,829	10,276	25,830	18,048	17,125	143.1	150.8	
Switzerland 1)	182	179	175	101.5	103.8	3,389	3,294	3,372	5,647	5,489	5,619	102.9	100.5	
Czechoslovakia	2,064	2,047	1,899	100.9	108.7	32,242	24,739	29,058	53,736	41,232	48,428	130.3	111.0	
Yugoslavia	5,243	5,395	4,899	97.2	107.0	38,887	59,274	48,794	64,810	98,789	81,322	65.6	79.7	
Total Europe	\$) 75,036	75,620	71,031	99.2	105.6	899,988	853,386	797,762	1,499,947	1,442,285	1,329,575	105.5	112.8	
*U. S. S. R.	85,940	92,074	74,445	93.3	115.4	...	...	504,153	...	...	840,238	...	...
Canada	27,175	26,115	23,926	104.1	113.6	280,290	182,486	261,452	467,150	304,144	435,744	153.6	107.2	
United States (w)	33,245	41,363	38,202	80.4	87.0	265,073	473,677	352,524	441,788	789,462	587,541	56.0	75.2	
Mexico	22,169	13,936	21,243	159.1	104.4	161,951	62,845	162,919	269,919	104,742	271,532	257.7	99.4	
Total North Amer.	1,066	1,501	1,278	71.1	83.4	5,353	9,736	6,724	8,921	16,226	11,207	55.0	79.6	
	83,655	82,915	84,649	100.9	98.8	712,667	728,744	783,619	1,187,778	1,214,574	1,306,024	97.8	90.9	
Korea . . . . .	...	...	882	...	...	4,983	5,004	5,422	8,305	8,340	9,037	99.6	91.6
India	33,749	32,189	31,485	104.8	107.2	202,182	208,432	199,203	336,971	347,387	332,005	97.0	101.5	
Japan	1,245	1,228	1,185	101.4	105.1	19,520	18,536	17,819	32,533	30,892	29,699	105.3	109.5	
Syria and Leban.	1,191	1,167	1,118	102.0	106.5	7,187	8,252	8,383	11,978	13,753	13,971	87.1	85.7	
Total Asia	\$) 37,067	\$) 35,466	34,670	104.5	106.9	233,872	240,224	230,827	389,787	400,372	384,712	97.4	101.3	
Algeria	3,695	3,640	3,738	101.5	98.8	19,731	15,390	17,755	32,885	25,649	29,592	128.2	111.1	
Egypt	1,762	1,649	1,583	106.8	111.3	31,548	27,644	24,460	52,579	46,072	40,766	114.1	129.0	
Eritrea	15	22	23	66.7	65.8	93	18	44	154	29	73	...	...
*Kenya 2)	38	49	67	88.0	56.4	...	174	404	...	290	674	...	...
French Morocco	2,450	2,337	2,699	96.6	90.8	13,179	17,870	16,553	21,965	29,783	27,588	73.7	79.6	
Tunis	2,100	1,977	1,774	106.2	118.4	8,819	8,378	6,905	14,697	13,062	11,508	105.3	127.7	
Total Africa	10,022	9,825	9,817	102.0	102.1	73,370	69,300	65,717	122,280	115,495	109,527	105.9	111.6	
Argentina	3) 19,744	3) 17,295	3) 20,901	114.2	94.5	...	135,556	150,156	...	225,922	251,255	...	...
Chili	1,570	1,517	1,635	103.5	96.1	...	12,712	16,597	...	21,187	27,661	...	...
Australia	15,585	14,500	14,387	107.5	108.3	120,000	113,792	93,450	200,000	189,653	155,748	105.5	128.4	
GRAND TOTALS	\$) 221,365	\$) 218,326	214,554	101.4	103.2	2,039,897	2,005,446	1,971,375	3,399,792	3,342,379	3,285,586	101.7	103.5	
RYE.														
Germany	10,996	10,788	11,616	101.9	94.7	184,819	147,769	165,770	330,034	262,982	296,018	125.5	111.5	
Austria	944	934	942	101.1	103.0	13,358	10,601	11,143	23,853	18,931	19,898	126.0	119.9	
Belgium	573	553	569	103.6	100.7	11,244	11,470	11,862	20,078	20,483	21,182	98.0	94.8	
Bulgaria	544	597	521	91.1	104.3	5,676	6,760	4,716	10,136	12,072	8,422	84.0	120.3	
Spain	1,517	1,516	1,658	100.1	91.5	13,317	11,817	12,420	23,780	21,103	22,179	112.7	107.2	
Estonia	364	356	351	102.2	103.5	3,770	3,259	3,515	6,732	5,820	6,277	115.7	107.3	
Finland	544	554	540	98.2	100.7	7,165	6,604	6,663	12,795	11,792	11,898	108.5	107.5	

COUNTRIES	†) AREA						†) PRODUCTION							
	1932	1931	Average	%	1932		1932	1931	Average	%	1932		1932	1931
	1932/33	1931/32	1926/27	1932	1931/32	Aver.	1932/33	1931/32	1926/27	1932	1931/32	1926/27	1931/32	Aver.
			to 1930/31	1932/33					to 1930/31			to 1930/31	1931/32	
	1,000 acres						1,000 cents				1,000 bushels			
				= 100									= 100	
France	1,755	1,760	1,899	99.7	92.4		19,705	16,530	18,253	35,188	29,519	32,594	119.2	108.0
Greece	—	172	131	—	—		—	772	1,008	898	1,378	1,605	76.6	85.9
Hungary	1,574	1,486	1,631	105.9	96.5		18,034	12,136	16,374	32,203	21,672	29,240	148.6	110.1
Italy	294	304	305	96.6	96.2		3,584	3,652	3,584	6,400	6,521	6,401	98.1	100.0
Latvia	593	572	628	103.7	94.5		6,622	3,144	5,448	11,825	5,615	9,729	210.6	121.5
Lithuania	1,195	1,257	1,164	95.0	102.7		11,653	9,118	11,307	20,808	16,282	20,192	127.8	103.1
Luxemburg	17	16	18	108.1	97.1		231	188	219	413	336	391	123.1	105.7
Norway	16	15	20	107.0	79.8		295	212	318	527	378	569	139.4	92.7
Netherlands	407	445	485	91.6	84.1		7,650	7,933	8,698	13,660	14,167	15,532	96.4	88.0
Poland	13,834	14,263	14,078	97.0	98.3		141,343	125,722	137,337	252,399	224,504	245,246	112.4	102.9
Portugal	—	427	407	—	—		3,590	2,839	2,446	6,411	5,070	4,369	126.4	146.7
Rumania	791	1,006	779	78.6	101.5		7,275	7,819	7,123	12,992	13,962	12,721	93.0	102.1
Sweden	514	511	686	100.5	74.9		9,722	6,577	9,925	17,362	11,745	17,723	147.8	98.0
Switzerland	45	46	49	99.5	92.3		833	785	894	1,488	1,402	1,597	106.2	93.2
Czechoslovakia	2,510	2,470	2,584	101.6	97.1		47,970	30,593	36,765	85,661	54,631	65,651	156.8	130.5
Yugoslavia	615	625	557	98.4	110.5		4,527	4,264	4,144	8,084	7,614	7,399	106.2	109.2
Total Europe	\$) 40,241	40,673	41,618	98.9	96.7		523,155	430,300	479,822	934,207	768,401	856,831	121.6	109.0
* U. S. S. R.	65,731	68,380	65,482	96.1	100.4		—	—	492,031	—	—	878,629	—	—
Canada	773	778	955	99.4	80.9		7,126	2,980	8,685	12,725	5,322	15,509	239.1	82.0
United States	3,324	3,127	3,312	106.3	100.4		23,774	18,208	22,692	42,453	32,514	40,522	130.6	104.8
Total North Amer.	4,097	3,905	4,267	104.9	96.0		30,900	21,188	31,377	55,178	37,836	56,031	145.8	98.5
Algeria	5	3	4	161.8	147.9		37	20	28	67	37	49	183.0	135.6
* French Morocco	2	2	2	94.5	105.3		—	8	11	—	14	19	—	—
* Argentina	3) 1,581	3) 1,378	3) 1,065	114.7	148.5		—	5,456	3,329	—	9,744	5,945	—	—
* Chili	7	7	8	104.3	92.1		—	46	71	—	82	127	—	—
GRAND TOTALS	\$) 44,343	44,581	45,889	99.5	96.6		554,092	451,508	511,227	989,452	896,274	912,911	122.7	108.4

BARLEY.

Germany	3,875	4,001	3,733	96.8	103.8		71,020	66,540	64,324	147,961	138,627	134,011	106.7	110.4
Austria	428	416	387	103.0	110.6		6,654	4,775	5,531	13,862	9,948	11,523	139.3	120.3
Belgium	89	70	78	126.9	114.2		2,068	1,705	4,308	3,552	3,879	121.3	111.1	—
Bulgaria	568	607	591	93.6	96.2		6,769	7,949	6,607	14,102	16,560	13,765	85.2	102.5
Spain	4,837	4,644	4,481	104.2	107.9		61,087	43,548	45,265	127,267	90,727	94,304	140.3	135.0
Estonia	266	279	283	95.4	93.9		2,046	2,840	2,512	4,263	5,918	5,233	72.0	81.5
* Irish Free State	103	116	125	89.0	82.4		—	2,362	2,939	—	4,921	6,122	—	—
Finland	300	276	276	109.1	108.8		3,594	3,086	3,220	7,487	6,430	6,708	116.4	111.6
* France	1,859	1,865	1,721	99.7	108.0		—	22,911	23,904	—	47,732	49,801	—	—
Engl. and Wales	963	1,029	1,104	93.6	87.2		16,710	17,294	20,300	34,813	36,029	42,293	96.6	82.3
* Scotland	70	88	112	79.6	62.6		—	1,658	2,249	—	3,453	4,685	—	—
Greece	—	550	472	—	—		—	5,512	3,430	—	11,483	6,945	—	—
Hungary	1,165	1,165	1,077	100.0	108.2		15,891	10,496	13,327	33,107	21,867	27,765	151.4	119.2
Italy	530	538	579	98.6	91.6		5,538	5,310	5,257	11,537	10,953	10,453	104.3	105.3
Latvia	457	451	436	101.4	104.8		4,173	4,228	3,462	8,694	8,809	7,213	98.7	120.5
Lithuania	495	474	499	104.4	99.2		4,883	5,205	4,796	10,173	10,845	9,992	93.8	101.8
Luxemburg	10	11	9	89.9	114.1		132	128	115	276	266	240	103.6	115.0
Malta 4)	6	7	7	90.3	94.0		129	137	141	269	285	294	94.4	91.8
Norway	137	138	142	98.9	96.6		2,677	2,019	2,341	5,578	4,207	4,877	132.6	114.4
Netherlands	50	71	71	70.3	70.0		1,301	1,572	1,960	2,710	3,274	4,084	82.8	66.4
Poland	3,142	3,144	2,905	99.9	108.2		33,891	32,534	31,466	70,607	67,781	65,598	104.2	107.6
Portugal	—	170	175	—	—		—	1,151	972	—	2,025	1,845	—	—
Rumania	4,547	4,742	4,494	95.9	101.2		39,463	31,182	42,194	82,216	64,964	87,906	126.6	93.5
Sweden	292	311	333	94.0	87.7		4,850	5,143	5,394	10,105	10,716	11,237	94.3	89.9
Switzerland	17	18	16	98.6	107.7		287	271	263	597	565	549	105.7	108.9
Czechoslovakia	1,759	1,775	1,753	99.1	103.3		33,175	23,691	28,347	69,116	49,357	59,057	140.0	117.0
Yugoslavia	1,040	1,117	1,022	93.0	101.7		8,527	8,640	8,383	17,765	18,000	17,464	98.7	101.7
Total Europe	\$) 25,693	26,004	24,923	98.8	103.1		331,528	282,695	301,305	690,694	588,960	627,735	117.3	110.0
* U. S. S. R.	16,329	16,854	18,169	96.9	89.9		—	—	130,089	—	—	271,024	—	—
Canada	3,742	3,768	4,704	99.3	79.6		42,264	32,344	54,795	88,050	67,383	114,158	130.7	77.1
United States	13,895	11,428	11,231	121.6	123.7		120,435	95,129	126,785	313,407	264,139	298,181	118.7	118.7
Total North Amer.	17,637	15,196	15,935	116.0	110.7		192,699	127,473	181,580	401,457	265,568	378,297	151.2	106.1

COUNTRIES	†) AREA						†) PRODUCTION							
	1932	1931	Average 1926 to 1930	% 1932 1931/33		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932 1931/33		
	1932/33	1931/32	1926/27 to 1930/31	1931 1931/1932	Aver. 1931/1932 = 100		1932/33	1931/32	1926/27 to 1930/31	1932/33	1931/32	1926/27 to 1930/31	1931 1931/1932	Aver. 1931/1932 = 100
	1,000 acres						1,000 centals			1,000 bushels				
Korea	2,206	2,191	2,252	100.7	98.0	21,161	20,093	17,617	44,086	41,862	36,702	105.3	120.1	
Japan	1,916	2,105	2,265	91.0	84.6	38,426	36,730	38,870	80,055	76,522	80,980	104.6	98.9	
Syria and Lebanon	810	818	746	99.0	108.6	5,084	6,812	8,299	10,592	14,193	17,291	74.6	61.3	
Total Asia	4,932	5,114	5,263	96.4	93.7	64,671	63,635	64,786	134,733	132,577	134,973	101.6	99.8	
Algeria	3,206	3,178	3,505	100.9	91.5	14,110	12,993	16,886	29,396	27,069	35,181	108.6	83.6	
Egypt	366	306	364	119.7	100.5	5,798	4,653	5,379	12,080	9,694	11,206	124.6	107.8	
Eritrea	99	62	54	160.0	183.5	617	445	144	1,286	928	299	138.6	429.4	
French Morocco	2,930	3,222	2,995	90.9	97.8	17,882	28,335	21,933	37,254	59,032	45,695	63.1	81.5	
Tunis	1,483	1,223	1,235	121.2	120.1	7,496	3,968	4,063	15,616	8,268	8,465	188.9	184.5	
Total Africa	8,084	7,991	8,153	101.1	99.2	45,903	50,394	48,405	95,632	104,991	100,846	91.1	94.8	
*Argentina	3) 1,458	3) 1,439	3) 1,276	101.3	114.3	...	10,620	7,668	...	22,125	15,976	...	...
*Chile	111	106	167	104.8	66.7	...	1,487	2,390	...	3,097	4,980	...	...
GRAND TOTALS	§) 56,346	54,305	54,274	103.8	103.8	634,801	524,197	596,076	1,322,516	1,092,096	1,241,851	121.1	106.5	

OATS.

Germany	8,115	8,310	8,634	97.7	94.0	147,851	136,795	144,210	462,032	427,482	450,653	108.1	102.5
Austria	784	777	759	100.9	103.4	10,020	7,321	9,645	31,312	22,877	30,141	136.9	103.9
Belgium	714	729	682	98.0	104.7	15,293	15,483	15,044	47,790	48,384	47,013	98.8	101.7
Bulgaria	281	295	335	95.3	83.9	2,489	2,754	2,327	7,777	8,605	7,272	90.4	106.9
Spain	1,926	1,986	1,902	97.0	101.3	17,165	13,355	13,353	53,659	41,670	41,664	128.7	128.7
Estonia	356	367	356	97.2	100.0	2,799	3,615	2,807	8,747	11,296	8,772	77.4	99.7
*Irish Free State	623	623	650	100.0	95.8	...	11,666	14,628	...	36,457	45,713	...	...
Finland	1,119	1,149	1,100	97.4	101.8	13,398	14,684	12,952	41,867	45,886	40,475	91.2	103.4
*France	8,418	8,564	8,584	98.3	98.1	...	101,213	109,235	...	316,288	341,352	...	...
Engl. and Wales	1,577	1,652	1,802	95.5	87.5	27,373	27,774	32,032	85,540	86,793	100,098	98.6	85.5
*Scotland	866	835	893	103.8	96.9	...	13,933	15,573	...	43,540	48,664	...	...
*N. Ireland	286	286	312	100.0	91.7	...	5,065	6,312	...	15,827	19,725	...	...
Greece . . . . .	...	344	279	...	...	1,984	1,688	1,595	6,200	5,274	4,985	117.6	124.4
Hungary	575	596	665	96.5	86.4	6,387	4,278	7,753	19,959	13,368	24,227	149.3	82.4
Italy	1,113	1,146	1,255	97.1	88.6	13,378	12,629	13,112	41,805	39,467	40,974	105.9	102.0
Latvia	802	795	735	100.9	109.1	6,946	7,555	5,646	21,705	23,611	17,644	91.9	123.0
Lithuania	931	900	828	103.4	112.4	7,981	8,981	7,311	24,940	28,065	22,846	88.9	102.2
Luxembourg	74	75	72	98.9	102.9	1,124	871	984	3,514	2,721	3,076	129.1	114.2
Norway	235	237	241	99.1	97.4	4,250	3,038	4,124	13,282	9,494	12,889	139.9	103.1
Netherlands	350	369	378	94.9	92.5	6,693	6,331	7,341	20,916	19,784	22,941	105.7	91.2
Poland	5,367	5,367	5,125	100.0	104.7	52,468	50,915	52,374	163,963	159,109	163,668	103.0	100.2
Portugal . . . . .	...	422	443	...	...	2,354	2,026	1,835	7,355	6,331	5,735	116.2	128.2
Rumania	2,100	2,154	2,757	97.5	76.2	16,755	14,776	24,354	52,360	46,175	76,107	113.4	68.8
Sweden	1,577	1,590	1,729	99.1	91.2	24,802	22,326	25,867	77,506	69,677	80,835	111.1	95.9
Switzerland	41	45	50	89.7	81.4	750	739	926	2,342	2,308	2,894	101.5	81.0
Czechoslovakia	2,020	2,031	2,073	99.4	97.4	36,681	26,998	30,809	116,628	84,368	96,276	135.9	119.1
Yugoslavia	848	974	969	87.0	87.5	5,620	5,837	7,283	17,563	18,242	22,759	96.3	77.2
Total Europe	§) 31,671	32,310	33,169	98.0	95.5	424,561	390,749	423,664	1,326,642	1,221,077	1,323,944	108.7	100.2
*U. S. S. R.	35,149	42,492	43,286	82.7	81.2	...	...	342,579	...	...	1,070,551	...	...
Canada	13,157	12,871	12,971	102.2	101.4	143,660	111,615	134,725	448,937	348,795	421,014	128.7	106.6
United States	41,994	39,719	40,230	107.7	104.4	404,909	355,852	380,694	1,265,341	1,112,037	1,189,662	113.8	106.4
Total North Amer.	55,151	52,590	53,201	104.9	103.7	548,569	467,467	515,419	1,714,278	1,460,832	1,610,676	117.3	106.4
Syria and Lebanon	28	27	42	102.3	66.6	300	228	287	936	711	897	151.7	104.4
Algeria	498	557	605	89.4	82.4	2,601	2,628	4,169	8,130	8,212	13,028	99.0	62.4
French Morocco	63	60	82	106.0	77.2	509	531	637	1,591	1,660	1,992	95.9	79.9
Tunis	66	67	109	129.6	79.3	617	728	780	1,929	2,274	2,429	84.8	79.1
Total Africa	847	684	796	94.9	81.7	3,727	3,887	5,586	11,650	12,146	17,449	95.9	66.7
*Argentina	3) 3,509	3) 3,470	3) 3,535	101.1	99.3	...	22,170	19,504	...	69,280	60,949	...	...
*Chile	174	166	203	104.9	86.0	...	1,575	2,171	...	4,923	6,785	...	...
GRAND TOTALS	§) 87,497	85,611	87,208	102.2	100.3	977,157	862,331	944,956	3,053,606	2,694,766	2,952,966	113.3	103.4

†) The two dates given refer to the years in which the harvest took place in the northern and southern hemispheres respectively. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production but not those of area are available. — * Countries not included in the totals. — w) Autumn crops. — s) Spring crops. — r) Including spelt and meslin. — 2) European crops only. — 3) Area sown. — 4) Barley and meslin.

Irish Free State : The weather during September was variable but generally favourable to harvesting operations, which were carried through successfully. No serious damage was reported as due to pests or disease.

France : In the second half of September temperature fell considerably. Storm rains and cool nights with mists or hoar-frost in the mornings characterised the period. Work in the fields made good progress and appeared to be in advance of normal. The rains favoured sprouting of the first sowings and seeding continues. Weather in the first decade of October was good for the season with cool nights. First sowings had generally a good appearance and cultivation and further sowings were progressing satisfactorily. Temperatures continue low and snow has fallen in the high plateaus. Heavy rains seriously hindered operations in the South, West and Southwest.

The area under mixed grain this year was 178,000 acres against 202,000 in 1931 and 199,000 on the average for the period 1926 to 1930; percentages: 88.2 and 89.4. Production is 2,106,000 centals (3,630,000 bushels) compared with 2,051,000 (3,536,000) in 1931 and 2,127,000 (3,867,000) on the average for the period 1926 to 1930; percentages: 102.7 and 99.0.

Great Britain and Northern Ireland : In England and Wales the fine spell of August was followed by unsettled weather conditions which prevailed during the greater part of September. In the first half of the month frequent rains caused some hindrance to the later stages of the cereal harvest. The latter part was cold, with some night frosts, but this period was improved by bright intervals and on the whole, was not unfavourable to agriculture. Cereals harvested before the end of August were for the greater part secured under very favourable circumstances and a large proportion was stacked in good condition, but some of the grain harvested later was badly weathered and gathered in damp condition. Good progress was made in ploughing and in cleaning of the stubbles, which were rather dirty in many districts. Very few catch crops have been attempted.

In Scotland the weather in September was generally rather wet and unsettled but fine dry intervals enabled fair progress to be made with harvest work. Most of the grain crops were secured in good order.

In Northern Ireland good progress was made in harvesting operations from the middle of the second week of September onwards, but during the first ten days this work was interfered with by the unfavourable weather. The harvesting and saving of wheat was completed during the month and the few lots threshed yielded well. Only a very small proportion of the oat crop remained unsaved at the end of September and threshing was in progress in many districts. The forecast that the yield would be considerably above average is being supported by the reports following threshing. The quality of the grain, generally, is good. There have been a number of instances of oats "heating" in the stack. Harvesting of barley was practically completed but little threshing had been done at the end of the month and a satisfactory yield was anticipated.

Hungary : During the period September 18 to October 5 the weather was characterised by exceptionally high temperatures and by persistent drought. The quantity of precipitation was small. Only after heavy rainfall during the last few days of the period mentioned did precipitation in several southern regions on the right bank of the Danube reach a normal quantity, whereas in other regions of the country it varied from $\frac{1}{3}$ to $\frac{2}{3}$ of the normal quantity. The dry weather was favourable for the threshing of cereals but retarded field operations for sowing, which is progressing slowly.

Italy : Preparations for sowings of winter cereals, which had made good progress in the first half of September, were hindered by bad weather in some provinces of the North and Centre and by excessive drought in the South ; in the elevated areas wheat sowings have began.

Latvia : The average temperature for September was above the normal. During the first ten days, the weather was warm with a moderate quantity of precipitation. During the period from the 10th to the 20th, the temperature began to fall and the quantity of precipitation increased. During the last ten days, the temperature fell considerably but rose again at the end of the month. The quantity of rainfall in September, although abundant, was not excessive.

Lithuania : The weather conditions in September were rather favourable for field work. The winter cereal sowings were completed during the latter half of September ; at first the weather was favourable but later the rain caused some hindrance.

The production of mixed grain in 1932 was 2,619,000 centals (4,515,000 bushels) compared with 2,524,000 (4,352,000) last year and 2,569,000 (4,429,000) on the average for the preceding quinquennium. Percentages : 103.8 and 101.9.

Norway : Production of mixed grain in 1932 is estimated at 279,000 centals (480,000 bushels) compared with 179,000 (308,000) in 1931 and 278,000 (479,000), the average for the preceding quinquennium. Percentages : 156.0 and 100.2.

Netherlands : Thanks to the favourable weather during August, it was possible to harvest cereals in good conditions. Wheat is giving high yields of good quality except in fields where the crop has been lodged and where the grain has remained too small. The yield of oats is also good, although it is feared that it will not be so good as anticipated in the fields lodged. Crop conditions on September 20 were : wheat 74 and oats 70, against 73 and 71 respectively on August 18, and 67 for both cereals, the September average for the last ten years.

Poland : Thanks to the favourable weather the cutting of cereals was effected under very favourable conditions and germination in the ear was negligible. Loss of grain during cutting was very small. Field work and the winter sowings were effected under mostly favourable conditions.

Portugal : Up to September 20 the weather was warm and dry, during the last ten days of the month adverse weather delayed the completion of threshing of cereals ; the rain which fell, however, favoured preparatory work for the sowings.

Rumania : The latter half of September was characterised by severe drought and exceptionally high temperatures. The preparation of the fields for the autumn sowings is very difficult due to lack of moisture.

Czechoslovakia : The area under spelt this year was 2,290 acres and production 22,100 centals. Compared with the figures for last year and the average of the preceding five years, the area in 1932 represents 148.7 % and 345.1 % respectively and production 181.4 % and 342.3 %.

The area under mixed grain this year was 19,200 acres compared with 20,750 in 1931 (92.4 %) and 26,200 on the average for the period 1926-30 (73.2 %). Production

is 269,000 centals (464,000 bushels) against 235,000 (405,000) in 1931 (114.5 %) and 322,000 (556,000) the average for the period 1926-30 (83.5 %).

Yugoslavia : During the month of September the days were sunny, dry and hot, while the nights were rather fresh. These weather conditions were very favourable for field work and for winter sowings. The harvesting of the cereals in the first few days of the month was everywhere completed.

U. S. S. R. : The winter cereal sowings are proceeding rather more slowly than last year and were not accelerated until after September 20. The area sown to winter crops up to October 5 was 71,320,000 acres or 70.5 % of the plan, whereas last year at the same date 76,586,000 acres or 76.4 % of the area planned had already been sown. The North Caucasus and the Ukraine, despite notable efforts made in the latter half of the month, are still backward ; the former had sown 32.9 % of the acreage planned and the Ukraine 56.3 %. The Lower-Volga region, where 76.6 % of the acreage planned has been sown, is also still in arrear.

Of the total area sown as on 5 October, 48,610,000 acres belong to the kolkhozi, 18,560,000 to the individual farms and 4,150,000 to the State farms.

Tillage preparatory to the spring sowings is also progressing slowly this year; on 5 October 21,450,000 acres or 20.2 % of the area planned, had been tilled. Compared with the same date of last year this area is 16,129,000 acres smaller.

During the last few weeks the government has introduced a series of measures destined to have a repercussion on Russian agriculture in general and on cereal production in particular. The decree of September 4 last based on the great diffusion of the collectivisation of individual farms, which in the principal agricultural regions of the Union has now extended over 80 %-90 % of the total area originally under private ownership, affirms that the degree of collectivisation reached presents the possibility of organising agriculture into collective farms on a more rational basis and states that the present territorial dimensions of the collective farms should be fixed ; the government therefore limits, by a series measures, any further sub-division of the kolkhozi farms and the possibility of withdrawal of those peasants who desire to return to individual farming.

By another decree of September 23, the Government, replying to demands for the free distribution of seed, declares that " owing to the satisfactory production of the current year and the reduction of the quantity of cereals which the kolkhozi must deliver to the Government " neither the kolkhozi nor the sovkhozi will be granted loans of seed either for the winter or for the spring sowings and that the responsibility for the formation of the seed reserves necessary for sowing falls on the administrations of the kolkhozi and the sovkhozi.

The third decree, dated September 29, stating that the area at present sown in the U. S. S. R. is about 70,000,000 acres larger than that of the pre-war period, makes the following provisions :—

To prevent a further increase in the area of industrial and hoed crops in the 1933 plan and to increase the area of cereals (principally wheat, oats and barley) concentrating all efforts on the intensification of agriculture and especially on the increase of yields per acre. The decree fixes the area of all spring crops in 1933 at 240,900,000 acres, that is, about 2.5 million acres more than in 1932 ; the area under wheat, barley and oats is to be increased by 6,200,000 acres of which 2,500,000 is obtained by increasing the area cultivated and 3,700,000 by the reduction of acreages under other less important crops. By a later measure of October 9, the areas to be sown in the spring of 1933 have been fixed as follows : 59,600,000 acres to wheat ; 41,126,000 to oats and 17,967,000 to barley.

By a decree of October 1 the administration of the cereal producing sovkhozi and those for the rearing of livestock has been taken from the Commissariat for Agriculture and placed under the charge of an independent Commissariat.

Lastly, another measure provides, for single regions, a series of rotations which should assure an improvement in yields per acre.

Argentina : According to the official report dated September 22 of the Department of Rural Economy and Statistics of the Ministry of Agriculture, the crop condition of wheat was good in the province of Buenos Aires and varied from fair to good in the South of Santa Fé and the province of Cordoba and from fair to bad in the North of Santa Fé and the province of Entre Rios where locusts caused some damage. The second estimate of the area sown this year to cereals except wheat differs only slightly from the first estimate communicated on August 24. It is calculated that 618,000 acres of wheat will not be harvested owing to damage by locusts in the North of Santa Fé and in the province of Entre Rios. The cold weather in the first half of September has checked the excessive growth of the wheat crop and weeds in the province of Buenos Aires whereas the dry weather has damaged crops in the province of Cordoba.

(Telegram of October 20) : The crop condition of cereals is, in general, good. The locust invasion has reached the province of Buenos Aires and it is consequently feared that the damage will be more extensive than that already caused in the provinces of Santa Fé and Entre Rios.

Canada : According to an official report for Saskatchewan, about 85 % of the wheat in that province had been threshed by September 26. Threshing is more advanced in the southern and central sections of the province where wheat threshing is from 85% to 100 % completed as compared with an average of about 60 % in the northern districts. The grading of wheat indicates that the crop is of very good quality, a very large proportion going No. 1 or 2 Northern or better.

United States : In the week ended on September 22 work on the land was backward. In the last week of the month rains were beneficial in conditioning the soil in many areas but it continued too dry in most sections from Virginia northward as well as in the southern Great Plains and many areas from the western Lake Region westward to the Pacific coast. In parts of Kansas half of the winter wheat crop had been sown and the ground was in good shape for seed beds, except in the West; the crop was coming up in the Northwest and north central sections, with stands good in the latter area. The wheat area of the Pacific Northwest badly needed rains. In the first week of October work on the land was hindered by the dry state of the soil in many parts of the winter wheat belt, but in the second week nearly general rainfall brought an improvement in the eastern area of the country. In the third week there was no change in crop condition but in the fourth an improvement took place.

Mexico : August was generally warm and rainy. Preparatory work for the coming sowings was in progress.

Syria and Lebanon : In Lebanon the cereals suffered from the spring drought with a consequent reduction of the yields forecast.

Algeria : Preparatory work for the winter sowings of the agricultural year 1932-33 is continuing under good conditions thanks to light showers. The soil is still too dry, however, to permit more widespread tillage for the sowings. Some crops have been sown in dry soil since the beginning of October.

Tunis : The preparatory work for the winter cereal sowings of the agricultural season 1932-33 have been effected under good conditions. The soil is in good condition.

Union of South Africa : According to an official report, the failure of the cotton market and the poor price of lucerne have encouraged the sowing of a greatly increased area to wheat along the Orange River, but over the rest of the Union, with but few exceptions, there has been a great decrease in the area sown to winter crops and the continuous drought has in many cases destroyed all hopes of a harvest.

Australia : According to a telegram of October 17 the weather has been generally favourable to wheat crops throughout Australia. Rust has appeared in some parts of South Australia and frost damage is reported in a small section of Western Australia.

MAIZE

The information on the maize crop received at the Institute since the publication of the September Report already permits a more exact judgement of the results of the harvest of this cereal in the northern hemisphere.

In the first place it is noted from the data available that the four Danubian maize producing and exporting countries : Rumania, Yugoslavia, Hungary and Bulgaria have, in the current year, sown to maize 23.0 million acres, which is 2.8 % larger than the corresponding area of last year and 9.6 % above the average of 1926-30. The remaining seven European countries, for which official data are possessed, and which, besides being maize producers, also import this product : Italy, France, Spain, Czechoslovakia, Austria, Portugal and Switzerland, report an area which is, on the contrary, slightly smaller (—0.8 %) than that of last year and 4.4 % below the average. These contrasting changes in the maize areas of the two groups, reflect the varying importance attached to maize growing in the economies of these two groups of countries. In fact, as the group of maize importing countries at the same time also imports other bread-cereals, it in general prefers to increase the area of cereals destined for human consumption. In the last two years, the fact that maize prices have been so low compared with the quotations of other cereals, has had an influence in the same direction.

In the group of four Danubian countries the situation as regards maize is altogether different. In the first place, in these countries, maize is more largely used for human consumption. Further, this crop is favoured by the small-holders (so very numerous following the agrarian reform) who profit by utilising, for feeding livestock, the main product the maize crop together with its numerous bye-products. For these special reasons, maize growing has not been hit by the price crisis in this group of countries.

In the eleven European countries considered, the area is this year 1.7 % larger than that of last year and 6.2 % above the average.

As regards production, the course of the season has been generally very favourable for the growth of the crops. It was not until towards the end of the growing period and, precisely, in August that the drought and excessive heat considerably damaged the crops in Rumania and Hungary, bringing about a considerable reduction in the forecast of an exceptionally heavy crop. Notwithstanding these circumstances, the total production of the group of four Dan-

ubian countries amounts to 292 million centals (521 million bushels) against 260 (464) last year and 219 (390), the average (112.4 % and 133.5 %).

The production of the other seven European countries is about 104 million centals (185 million bushels), (for France : estimate ; for Italy : only " maggengo " maize), compared with 86 (154) last year and 90 (161), the average (119.5 % and 113.3 %). The total production of the eleven countries considered consequently amounts to 395 million centals (705 million bushels) compared with 346 (618) in 1931 and 311 (555), the average (114.2 % and 127.6 %).

Maize.

COUNTRIES	AREA					PRODUCTION							
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average to 1930	1932	1931	Average to 1930	% 1932	
				1931	Average							1931	Average
			= 100	= 100	= 100			= 100					
1,000 acres	1,000 centals				1,000 bushels of 56 lbs								
Austria . .	148	152	145	96.9	102.1	2,597	2,794	2,508	4,638	4,990	4,479	92.9	103.5
Bulgaria . .	1,829	1,676	1,693	109.1	108.0	23,246	21,983	15,239	41,511	39,256	27,212	105.7	152.5
Spain . . .	1,082	1,053	1,044	102.8	103.7	14,775	14,778	13,215	26,384	26,389	23,598	100.0	111.8
*France . .	782	855	843	91.5	92.8	...	13,789	9,695	...	24,623	17,312	...	...
Hungary . .	2,877	2,720	2,652	105.8	108.5	53,762	33,459	35,897	96,004	59,749	64,102	160.7	149.8
Italy . . .	3,267	3,226	3,515	101.3	93.0	59,353	40,382	52,449	105,988	72,111	93,659	147.0	113.2
*Italy . . .	363	308	225	117.6	161.1	...	2,266	2,167	...	4,046	3,870	...	...
*Portugal . .	...	369	861	...	...	8,947	9,824	8,217	15,976	17,543	14,673	91.1	108.9
Rumania . .	11,787	11,749	10,851	100.3	108.6	119,711	133,674	101,569	213,771	238,704	181,374	89.6	117.9
Switzerland	2	3	3	97.1	75.9	60	64	77	106	114	138	93.1	77.1
Czechoslov..	331	344	347	96.2	95.6	6,819	5,020	5,272	12,176	8,965	9,415	135.8	129.3
Yugoslavia .	6,442	6,168	5,734	104.4	112.4	95,240	70,623	65,918	170,072	126,113	117,711	134.9	144.5
*U. S. S. R. .	9,084	9,741	8,483	93.3	107.1	...	...	69,622	...	...	124,325	...	...
*Canada . .	125	132	159	94.9	78.8	...	3,039	3,172	...	5,426	5,665	...	...
United Stat.	108,609	105,100	99,449	103.3	109.2	1,615,422	1,435,432	1,441,334	2,884,682	2,563,271	2,573,817	112.5	112.1
*Syria a. Leb.	56	65	120	86.3	47.0	...	730	1,352	...	1,303	2,415	...	...
Algeria . .	17	24	24	69.7	68.6	141	133	144	252	238	257	106.0	97.9
Eritrea . .	7	22	16	33.3	47.6	66	240	97	118	429	174	27.5	67.9
*Kenya 1) .	176	161	199	109.9	88.6	...	1,525	2,804	...	2,724	5,008	...	...
It. Somalil .	24	53	39	45.1	61.0	213	521	417	380	931	745	40.8	51.0
Tunis 2) . .	44	45	41	99.0	108.2	121	110	109	217	197	194	110.0	111.3
TOTALS . .	136,466	132,335	125,553	103.1	108.7	1,991,526	1,759,213	1,734,245	3,556,299	3,141,457	3,096,875	113.2	114.8

* Countries not included in the totals. — s) Spring crop (maggengo). — t) Summer crop (cinquantino) — 1) European crop. — 2) Maize and sorghum.

Adding the production of the United States, which is 1,615 million centals (2,885 million bushels) a total of 2,010 (3,590) is obtained against 1,781 (3,181) in 1931 and 1,752 (3,129) on the average. This constitutes a first indication of the probable total for the northern hemisphere.

Considering that in the four preceding years the entire production of the northern hemisphere (excluding the U. S. S. R., China, Turkey and certain minor producers) has oscillated between 1,682 million centals (3,004 million bushels) as in 1930 and 2,028 (3,622) as in 1929, this year's production of only the twelve countries considered closely approaches the maximum of the period

1927-30. It may therefore be taken as certain that the production of the whole hemisphere will not be less than the large one of 1929.

As regards the possibilities of export it should be noted that the United States, the world's greatest maize producer, generally places less than 1 % of its production on the world market, while the four Danubian countries together export on the average about 15 % of their crop.

As for the possibilities of export from the Danubian group, their very small production of wheat should be borne in mind on account of which internal consumption will certainly absorb a larger quantity of maize than usual. The great difference between the prices of maize and of wheat will also influence the market in this direction. In Rumania, for example, in the second half of September, the price of wheat was exactly double that of maize. This circumstance is met with more or less in all the Danube countries. The Rumanian Government, despite of the special situation consequent on the abundant production of maize, estimates that only 33 million centals (59 million bushels) can be exported in the season just beginning. Regarding the supplies available in the other three Danubian countries there are as yet no official data, but they will certainly be large. In the coming season Hungary, whose exports in the two preceding seasons despite the duties, remained inferior to imports, will come in the world market with conspicuous quantities. For the next season the Government has already taken steps to facilitate the rapid and economic transport of the product both to the driers and to foreign countries. In the six months November-April (the period of maximum export in the northern hemisphere) it may also be expected that exports from the United States will be greater than in recent years, the extent of the increase depending on the level of prices.

Argentine stocks from this year's production are gradually diminishing. After an export accelerated from May of this year with very high monthly figures, the arrivals in importing countries from this source are expected begin to diminish and in the coming months to be supplemented by those from the northern hemisphere (Danubian countries and North America). According to provisional data the export of maize from Argentina was already in September 12.8 million centals (22.8 million bushels) while the monthly quantities from May to August varied from 14.1 million centals (25.2 millions bushels) to 19.6 (35.0).

The general cereal situation in the Danube countries and the low levels of prices make a quiet and reserved offer of maize likely despite the relative abundance of production. On the other hand there must be taken into account the fact that the importing countries are all striving to utilize fodders of home origin and checking imports by means of duties, quotas and difficult methods of payment with a view to preventing the loss of valuta on the part of their respective national economies.

V. DE.

* * *

Austria: Under the influence of the warm weather in September, the maize crop ripened very rapidly and harvesting began. The grain has, in general, developed normally but on permeable land in the principal producing areas of Styria and Burgenland, growth is often more advanced. The late varieties have suffered most.

Crop condition on October 1 was 2.8 against 2.6 on September 1 this year and 2.5 on October 1, 1931.

Hungary : During the first week of October the maize harvest made good advance in favourable weather. Despite the reduction of the official estimate of October 5 owing to drought, the production of maize in Hungary this year is still at a record figure.

Portugal : The crop condition of maize on irrigated land is good and a good crop is anticipated ; in the region of Aveiro, an important producing centre, the recent rains having been detrimental to the crop, particularly on low-lying land, the aspect of the crop is bad and the yield is expected to be poor.

Harvesting of the crop on dry land has been completed practically throughout the country. Total production is estimated to be smaller than that of 1931.

Rumania : At the beginning of October harvesting of the maize crop had begun in most of the departments. The warm, dry weather greatly favoured this operation.

Yugoslavia : [The sunny and hot weather during the month of September was very favourable for ripening of the maize crop, which, according to the first forecast, is estimated to be the highest obtained during the last ten years and also exceeds the record-crop of 1920 (91.4 million centals ; 163.3 million bushels).

Argentina : The maize sowings for the coming season are being effected under good conditions thanks to the humidity of the soil.

United States : In the last week of September cooler weather over the maize belt somewhat retarded the ripening of late fields but most of the crop had matured sufficiently to be safe from frost. In Iowa, fields remaining green ripened steadily, despite the coolness and about 90 % was estimated to be out of danger while the bulk was safe in Illinois. Harvesting had begun in parts of the belt. In the eastern Ohio Valley and in some Atlantic States the previous dry weather has damaged some crops. In the first half of October harvesting was proceeding under good conditions.

Mexico : The warm, rainy weather in August generally favoured the growth of maize crops in the principal areas of production where the drought in the first half of the month had retarded the crops. Crop condition on September 1 varied from good to average.

Dominican Republic : A very abundant production of good quality is anticipated.

Egypt : The early cultivations of *nili* maize in Lower Egypt are in the maturing stage. Cob formation is widespread in the general cultivations. Thinning, hoeing and manuring are in progress in the late cultivations. In Upper Egypt, however, flowering is general in the early crops, but cultivation continued in some areas even until the early days of October. Irrigation is being attended to, and thinning, hoeing and manuring are in progress. The condition of the crop is satisfactory: 100 on 1 October and 1 September, against 98 on 1 October, 1931.

Tunis : The weather has been relatively favourable for growth and harvesting of the maize crop.

RICE

Portugal : Harvesting has begun and production may be considered to be normal.

United States : In the last week of September rice harvesting was general in California and cutting and threshing of the late crop continued in Louisiana.

Mexico : Crop condition during August was good. Normal yields were anticipated in the principal areas of production.

Dominican Republic : Harvesting has begun and a satisfactory production is predicted.

India : During September the harvesting of autumn paddy and the transplanting of winter paddy in Bengal were completed. On October 5 more rain was needed for growth in West and North Bengal. Heavy rain fell in many areas of Bihar and Orissa during the month; on October 3 condition of winter rice was fair. In Madras heavy rain fell during the month on the west coast and moderate or heavy rains occurred at times elsewhere; at the end of the month crop condition was fair. Beneficial rains fell in the latter half of the month in the Central Provinces and full crops were in prospect; insects and grasshoppers caused some damage, however, in Chattisgarh. The monsoon was active in Lower Burma.

Rice.

COUNTRIES	AREA					PRODUCTION							
	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33		1932/33	1931/32	Average 1926/27 to 1930/31	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33	
				1931/ 1932	Aver- age							1931/ 1932	Aver- age
1,000 acres			= 100	= 100	1,000 centals			1,000 bushels of 45 lbs			= 100	= 100	
Bulgaria . .	13	14	18	93.4	72.8	304	290	350	675	645	777	104.5	86.8
Italy. . . .	330	356	350	92.8	94.4	13,733	14,428	14,689	30,517	32,062	32,642	95.2	93.5
United St. .	845	974	962	86.8	87.8	16,958	20,352	19,402	37,684	45,226	43,115	83.3	87.4
Korea . . .	3,824	4,104	3,922	93.2	97.5	..	63,283	62,987	..	140,625	139,967	..	..
Formosa I).	700	677	628	103.3	111.5	15,987	14,474	12,455	35,526	32,164	27,678	110.5	128.4
Japan . . .	7,976	7,962	7,829	100.2	101.9	245,425	220,133	242,738	545,378	489,174	539,406	111.5	101.1

1) First crop.

British Malaya : In general, the first half of August was dry and the second half wet. The work of preparing the land and transplanting from the nurseries was delayed by dry weather in parts of Kelantan, the whole of Province Wellesley and the coastal portions of Malacca, as well as in the coastal portion of Krian district where a heavy growth of weeds in the canals had impeded the flow of the water. Drought also checked the growth of padi in country bordering on the Pahang river. *Leptocorisa acuta*

the padi fly, and birds did a little damage to the flowering interseason crop in Selangor, but on the whole a good yield was anticipated.

Siam : The area planted in 34 out of the 35 provinces of the Seven Inner Circles as at 31 July, 1932, amounted to 2,364,300 acres, against 2,191,600 acres at same the time last year, showing an increase of 172,700 acres. The cultivable area in the 35 provinces was this year about 5,116,000 acres. The area planted at the end of July was, therefore, about 46 % of the cultivable land. The condition of the crop was reported to be as follows : 11 provinces doing well ; 11 provinces doing fairly well ; 11 provinces not doing well ; 2 provinces were not reporting on the condition of the crop.

Egypt : The early cultivations of *seifi* rice are about to mature, the weather being favourable and water abundant. Harvesting of the Japanese variety has begun in some small areas. The general cultivations are in the stage of grain formation. Crop condition : 100 at 1 October and 1 September and 94 at 1 October, 1931. The cultivation of *nili* rice was over in the first week of September. The ears are forming in the early cultivations and growth is satisfactory. Crop condition: 100 at 1 October, and 1 September, 1932 and at 1 October, 1931.

POTATOES

The output of the three most important European potato producers, Germany, Poland and Czechoslovakia, is now known.

In Germany the 1932 crop is very large, exceeding last year's good crop by 3.3 % and the average of the preceding five years by 15.6 % and being the largest crop so far obtained, with the exception of the record crop of 1930, to which it is inferior by only about 37,500,000 centals (60,000,000 bushels).

Poland, the second producing country in order of importance (excluding the U. S. S. R.) shows a very considerable reduction (of 11.8 %) on its first estimate. This year's production is rather poor, 13.2 % below the good crop of last year and 2.9 % below the five-year average, drought having predominated in the principal areas of production during the month preceding pulling.

In Czechoslovakia also the crop has not been good ; it is 13.6 % below that of 1931 and 4.9 % below the five-year average.

Statistical data is not yet available for France in which, however, despite the losses caused by rot in some districts, especially in the centre, the yields obtained are considered satisfactory.

Despite the marked decrease in Poland on the first estimate and the poor crop obtained in Czechoslovakia there is on the whole, thanks to the very abundant crop obtained by Germany, which accounts for a very large proportion of the total production, no noteworthy change in the estimate made last month and the 1932 crop may be considered as quite satisfactory and probably exceeding the five-year average.

If the figure of France is above the average and the output of European producers of less importance, for which figures are not yet available, is good, the total production of 1932 will not differ considerably from that of 1931, which was a year of abundant crop.

Potatoes

COUNTRIES	AREA					PRODUCTION								
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932		
				1931	Average							1931	Average	
			= 100					= 100			= 100			= 100
Germany . .	7,115	6,979	6,943	101.9	102.5	999,284	967,091	864,334	1,665,440	1,611,787	1,440,527	103.3	115.6	
Austria . .	495	478	459	103.5	107.9	51,787	59,879	52,508	86,310	99,797	87,512	86.5	98.6	
Belgium . .	435	425	410	102.4	106.3	77,704	78,857	74,142	129,503	131,425	123,567	98.5	104.8	
Bulgaria . .	37	32	28	115.4	134.3	1,819	1,720	946	3,031	2,866	1,576	105.8	192.4	
Estonia . .	166	168	166	98.8	99.9	14,614	18,839	16,688	24,356	31,398	27,813	77.6	87.6	
*Irish Free S.	348	346	363	100.6	96.0	...	43,279	53,605	...	72,132	89,341	...	...
Finland . .	192	174	173	110.5	111.1	20,426	15,997	17,419	34,042	26,661	29,030	127.7	117.3	
*France . .	3,442	3,533	3,589	97.4	95.9	...	359,350	308,759	...	598,904	514,588	...	...
Engl. a. W..	504	447	489	112.7	103.0	70,000	53,917	70,162	116,667	89,861	116,934	129.8	99.8	
*Scotland . .	146	128	140	114.0	104.1	...	15,680	21,258	...	26,133	35,429	...	...
*N. Ireland .	142	134	150	105.6	94.5	...	15,635	23,567	...	26,058	39,277	...	...
Hungary . .	729	701	658	104.1	110.9	37,025	31,912	41,269	61,706	53,185	68,781	116.0	89.7	
Italy . . .	1,018	1,015	870	100.3	117.0	44,093	33,136	42,804	73,486	55,226	71,339	133.1	103.0	
Latvia . . .	253	247	207	102.4	122.0	25,373	25,729	18,645	42,288	42,880	31,075	98.6	136.1	
*Lithuania .	427	409	347	104.4	123.0	...	43,254	33,644	...	72,089	56,072	...	...
Luxemburg .	40	41	40	96.0	99.0	5,115	4,700	3,652	8,524	7,832	6,086	108.8	140.1	
Malta . . .	7	7	7	108.1	100.3	564	670	636	941	1,117	1,060	84.2	88.7	
Norway . . .	123	116	120	105.9	103.0	22,399	17,071	18,150	37,330	28,451	30,249	131.2	123.4	
Netherlands	434	406	428	107.1	101.5	81,130	60,322	72,753	135,215	100,535	121,253	134.5	111.5	
Poland . . .	6,677	6,716	6,250	99.4	106.8	593,045	683,179	610,520	988,389	1,138,609	1,017,513	86.8	97.1	
*Rumania 1).	457	474	484	96.5	94.4	...	40,789	43,463	...	67,981	72,437	...	...
Sweden . . .	337	327	354	103.1	95.2	43,872	33,020	36,508	73,119	55,033	60,846	132.9	120.2	
Switzerland .	115	113	119	102.0	97.0	14,813	16,898	14,971	24,688	28,164	24,952	87.7	98.9	
Czechoslov .	1,811	1,778	1,772	101.9	102.2	185,236	214,429	194,761	308,720	357,375	324,594	86.4	95.1	
*U.S.S.R. . .	13,732	15,104	13,671	—	—	...	...	990,152	...	...	1,650,221	...	...
Canada . . .	540	584	562	92.5	96.1	41,745	52,305	46,352	69,575	87,175	77,252	79.8	90.1	
United St. .	3,411	3,371	3,097	101.2	110.1	214,108	225,311	213,920	356,847	375,518	356,526	95.0	110.1	
*Syria a. Leb.	18	20	16	87.8	115.6	...	971	1,089	...	1,619	1,815	...	...
Algeria { ^e)	24	29	30	84.8	80.1	958	723	874	1,597	1,205	1,457	132.5	109.6	
{ *m))	28	24	25	117.1	112.2	...	949	918	...	1,582	1,530	...	...
TOTALS . .	24,463	24,154	23,182	101.3	105.6	2,545,110	2,595,705	2,412,014	4,241,774	4,326,100	4,019,942	98.1	105.5	

* Countries not included in the totals. — ^e) winter, so-called early potatoes. — ^m) Main season crop. — 1) Unmixed crops. — 2) Area sown as on 20 June 1932.

* * *

Germany : The lifting of potatoes has this year begun relatively early. Yields are in general forecast to be satisfactory as regards both quantity and quality.

Austria : At the end of September harvesting of early potatoes was fairly well advanced. Although production of the latter left much to be desired, the production of main season potatoes is still less satisfactory due to the drought. The foliage withered before the tubers were well developed. The latter are generally numerous but small and not of good keeping quality.

Crop condition on October 1 was 2.7 against 2.6 on September 1 this year and on October 1, 1931.

Belgium : The potato crop was lifted under good conditions ; yields are very abundant and often vary, according to situation, from 180 centals (300 bushels) per acre to 270 (450).

Spain : Production of potatoes in some regions is estimated to be poor while in others it is abundant to the point of causing difficulty in marketing the product.

Estonia : During the period of growth of potatoes, the weather conditions were unfavourable, this explaining the decrease in production of 22 % compared with that of last year.

Irish Free State : The weather conditions during September, though variable, did not retard harvesting operations, which were practically completed at the end of the month. No damage of a serious character was reported as due to disease or pests.

France : The lifting of potatoes has made very good progress. In the Centre and West numerous cases of rotting are reported but production is on the whole satisfactory.

Great Britain and Northern Ireland : In England and Wales lifting of the main potato crop was in progress in most areas at the end of the month and in some districts was well forward. Reports indicate that in most districts the crop is yielding well and condition and quality are good. Disease is not unusually prevalent and provided that the tubers can be clamped in good condition there is no reason to anticipate that they will not keep satisfactorily.

In Scotland mild and humid conditions were general in September and root crops made very fair progress. Potatoes continued to grow very satisfactorily and a small proportion of the crop was lifted under good conditions. The crops generally are healthy.

In Northern Ireland the lifting of the main crop varieties commenced during the month and although the expectation of a bumper crop may not be fully realised in some districts, the results are highly satisfactory. The extra strong development of the foliage, followed by second growth in some crops will, it is believed, have an adverse effect on the yields as excess foliage was produced at the expense of tuber development. Blight caused damage in a few areas during the month but generally the effects of the disease have been comparatively light this year.

Hungary : During the first week of October, lifting of the potato crop advanced under good conditions. Owing to the considerable reduction made on October 5 in the previous official production estimate due to the drought, the production of potatoes this year will be below the average.

Lithuania : The weather conditions during September and at the beginning of October were not very favourable to the potato crops.

Poland : According the second estimate of September 15 the total production of potatoes is estimated at 593 million centals (988 million bushels) so that compared with the estimate based on the information obtained on August 15 there is a decrease of 81 ½ million centals (136 million bushels) or about 12 %. This is to be explained by the effects of the drought due to which, in many areas, growth of the tubers has been checked. Lack of moisture was felt especially in the departments of Warsaw, Lodz, Lvov and Kielze (over 90 %); in the other departments the drought was felt less severely, whereas in several places in the eastern departments, excessive moisture was reported.

Switzerland : Harvesting made rapid progress during the weeks of fine weather in September.

Canada : According to a telegram dated October 10 received from the Canadian Government potato production this year is much smaller than in 1931. The summer season in the Maritimes and eastern Canada was rather unfavourable but the main damage was caused by blight and rot in the autumn.

Cyprus : At the middle of September the new crop was making satisfactory progress, but the area planted was reported to be restricted, and there was a shortage of irrigation water.

SUGAR

The weather conditions in September and the first few days of October were largely favourable for the growth and maturity of sugar beet in Europe ; they were not however, so generally favourable as in the preceding month. In fact, although the last stage of growth was in general regular, in some countries the

1932-33 Campaign. — Analysis of Sugar Beets.

COUNTRIES	Average weight of root			Average weight of leaves			Sugar content			Weight of sugar per root		
	1932	1931	1926-1930	1932	1931	1926-1930	1932	1931	1926-1930	1932	1931	1926-1930
	oz.	oz.	oz.	oz.	oz.	oz.	%	%	%	oz.	oz.	oz.
2nd WEEK OF SEPTEMBER.												
Belgium	20.6	—	1) 17.3	27.0	—	1) 27.2	14.9	—	1) 14.4	3.1	—	1) 2.5
3rd WEEK OF SEPTEMBER.												
Germany	18.7	18.1	2) 16.8	15.4	17.6	2) 19.1	16.7	17.0	2) 16.4	3.1	3.0	2) 2.7
Netherlands	26.2	—	—	—	—	—	15.4	—	—	4.0	—	—
Czechoslovakia . . .	17.8	19.3	15.7	11.7	13.4	12.8	18.2	17.6	17.5	3.2	3.4	2.8
4th WEEK OF SEPTEMBER.												
Germany	20.1	20.0	18.1	15.2	19.0	17.7	17.0	17.3	17.3	3.4	3.3	3.1
Belgium	24.0	—	3) 21.5	27.2	—	3) 28.4	15.1	—	3) 15.5	3.6	—	3) 3.3
Finland	21.6	18.6	4) 16.8	27.7	25.3	4) 23.9	15.4	16.5	4) 14.6	3.3	3.1	4) 2.5
France	19.2	18.3	4) 17.9	19.0	20.6	2) 17.5	17.3	17.7	2) 16.8	3.3	3.2	2) 3.0
Czechoslovakia . . .	19.0	19.8	16.9	10.9	12.7	11.8	18.5	18.0	17.9	3.5	3.6	3.0
LAST WEEK OF SEPTEMBER.												
Finland	22.8	21.1	4) 17.6	26.6	26.6	4) 23.4	15.8	16.5	4) 14.8	3.6	3.8	4) 2.6
France	23.1	—	5) 17.6	13.8	—	5) 15.0	16.7	—	5) 17.5	3.3	—	5) 3.0
1st WEEK OF OCTOBER.												
Netherlands	30.1	23.0	6) 27.2	—	—	—	16.4	18.6	6) 17.7	4.9	4.3	6) 4.8

1) Average 1926 and 1927. — 2) Average 1926 to 1928 and 1930. — 3) Average 1926, 1927 and 1930. — 4) Average 1927 to 1930. — 5) Average 1926, to 1929. — 6) Average 1928 to 1930.

dry weather at the end of September hardened the soil, creating difficulties of lifting the crop and prejudicing the final phase of maturity. These conditions were experienced in Czechoslovakia, where the weather was dry and warm up to the first ten days of October, during which temperatures were still very high and considerably above the average. In Bohemia some precipitation was recorded in the first few days of October, somewhat improving the situation, but in Moravia the dry weather persisted so long as to arouse anxiety concerning the good progress of harvesting of 107 factories which have sent their reports to Prague however, 73 indicate a good crop and 23 a satisfactory one. The sugar content per root is nearly equal to that of last year and considerably above the average.

Sugar beet.

COUNTRIES	AREA					PRODUCTION									
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932			
				1931	Average							1931	Average		
														= 100	= 100
1,000 acres					1,000 centals			1,000 short tons							
Germany . .	669	941	1,102	71.1	60.7	164,625	243,370	257,369	8,231	12,168	12,868	67.6	64.0		
Belgium . .	132	128	155	102.9	85.4	33,002	32,310	39,372	1,650	1,615	1,969	102.1	83.8		
Bulgaria . .	30	30	46	100.0	63.9	5,291	4,189	6,001	265	209	300	126.3	88.2		
Spain . . .	202	277	166	73.0	122.2	40,190	62,969	38,361	2,009	3,148	1,918	63.8	104.8		
Finland . .	6	5	5	117.3	110.9	1,036	794	834	52	40	42	130.6	124.2		
*France . .	617	621	633	99.4	97.5	...	136,592	145,298	...	6,829	7,265	...	...
*Engl. a. W.	255	233	220	109.3	115.7	...	37,094	40,045	...	1,875	2,002	...	...
*Scotland .	1	1	4	78.8	20.3	...	114	482	...	6	24	...	...
Hungary . .	113	134	172	84.0	65.5	18,356	21,301	32,654	918	1,065	1,633	86.2	56.2		
Italy . . .	207	287	253	72.2	82.0	49,604	52,263	57,967	2,480	2,613	2,898	94.9	85.6		
Netherlands	99	93	153	106.9	64.7	34,613	22,690	45,961	1,731	1,134	2,298	152.5	75.3		
*Poland . .	...	367	517	...	...	...	60,875	96,718	...	3,044	4,836	...	...
Sweden . .	99	87	75	113.4	131.0	29,366	19,317	18,577	1,468	966	929	152.0	158.1		
Switzerland.	3	3	4	109.4	96.8	1,036	838	1,056	52	42	53	123.7	98.1		
*Czechoslov.	361	461	637	78.2	56.6	...	115,541	146,730	...	5,777	7,336	...	...
*U.S.S.R. .	3,123	3,401	1,868	91.8	167.2	...	...	208,073	...	...	10,404	...	...
Canada . .	45	50	48	90.0	94.4	9,000	9,180	8,736	450	459	437	98.0	103.0		
United St. .	813	713	701	114.0	116.0	171,740	158,060	154,365	8,587	7,903	7,718	108.7	111.3		
TOTALS . .	2,418	2,748	2,880	88.0	83.9	557,859	627,281	661,253	27,893	31,362	33,063	88.9	84.4		

* Countries not included in the totals.

In France, until the period September 10-20, the persistence of dry weather aroused some anxiety regarding the outcome of lifting but subsequent rainfall brought an improvement in the condition of the crop although to a varying degree in the different regions. The sugar content per root is fairly high and is above that of last year and the average.

In Poland, though the dry, warm weather has increased sugar content, it has, however, as in the countries mentioned above, so dried and hardened the soil as to hinder the regular growth of the plants and their lifting.

In Spain, the condition of the beet crop has also deteriorated a little but, in contrast to the state of affairs in the countries already dealt with, the cause is, in this case, delay to maturity by excessive rain.

Among the minor producing countries crop condition has deteriorated slightly only in Austria.

Production of Beet Sugar (raw).

COUNTRIES	TOTAL PRODUCTION DURING THE SEASON						% 1932-33	
	1932-33 1)	1931-32	Average 1926-27 to 1930-31	1932-33 1)	1931-32	Average 1926-27 to 1930-31	1931-32	Average
	thousand cents			short tons			= 100	= 100
Germany	23,247	35,160	42,889	1,162,330	1,757,960	2,144,396	66	54
Austria	3,858	3,585	2,306	193,000	179,220	125,315	108	154
Belgium	5,090	4,422	5,733	254,500	221,113	286,621	115	89
Bulgaria	595	563	843	30,000	28,126	42,131	106	71
Denmark	4,079	2,690	3,243	204,000	134,000	162,126	152	126
Spain	4,805	7,954	4,988	240,266	397,690	249,391	60	96
Irish Free State	560	125	442	28,000	6,257	22,113	447	127
Finland	121	93	76	6,100	4,633	3,803	131	159
France	19,842	18,850	20,299	990,000	942,481	1,014,934	105	98
Great Britain	7,275	5,631	5,718	360,000	281,528	285,877	129	127
Hungary	2,315	2,761	4,685	116,000	138,062	234,235	84	49
Italy	6,173	7,901	8,218	310,000	395,100	410,900	78	75
Latvia	551	243	83	28,000	12,100	4,134	227	667
Netherlands	4,960	3,687	6,162	248,000	184,399	308,111	134	80
Poland	9,281	10,880	15,911	464,000	543,968	795,556	85	58
Rumania	1,455	1,138	3,013	73,000	56,900	150,630	128	48
Sweden	4,630	3,166	2,728	230,000	158,304	136,399	146	170
Switzerland	143	134	148	7,200	6,700	7,424	107	97
Czechoslovakia	14,069	17,921	24,384	703,437	896,055	1,219,161	79	58
Turkey	441	353	129	20,000	18,000	6,444	125	342
Yugoslavia	1,604	1,903	2,272	80,223	95,132	113,615	84	71
<i>Total Europe a)</i>	<i>115,094</i>	<i>129,160</i>	<i>154,470</i>	<i>5,748,056</i>	<i>6,457,568</i>	<i>7,723,316</i>	<i>89</i>	<i>74</i>
U. S. S. R.	28,219	33,069	26,723	1,410,000	1,650,000	1,336,142	85	106
<i>Total Europe b)</i>	<i>143,313</i>	<i>162,229</i>	<i>181,193</i>	<i>7,158,056</i>	<i>8,107,568</i>	<i>9,059,458</i>	<i>88</i>	<i>79</i>
Canada	1,050	1,071	818	52,500	53,569	40,912	98	128
United States	26,624	24,882	22,916	1,331,000	1,244,075	1,145,797	107	116
<i>Total North America</i>	<i>27,674</i>	<i>25,953</i>	<i>23,734</i>	<i>1,383,500</i>	<i>1,297,644</i>	<i>1,186,709</i>	<i>107</i>	<i>117</i>
*Korea . . . . .	...	36	15	...	1,822	764	...	...
*Japan . . . . .	...	592	517	...	29,598	25,868	...	...
<i>Total Asia</i>	<i>...</i>	<i>628</i>	<i>532</i>	<i>...</i>	<i>31,420</i>	<i>26,632</i>	<i>...</i>	<i>...</i>
*Australia . . . . .	...	118	53	...	5,878	2,648	...	...
GENERAL TOTALS { a)	142,768	155,113	178,204	7,131,556	7,755,212	8,910,025	92	80
b)	170,987	188,182	204,927	8,541,556	9,405,212	10,246,167	91	83

*) Countries not included in the totals — a) Not including the U. S. S. R. — b) Including the U. S. S. R. — 1) Approximate data. — 2) Average 1927-28 to 1930-31.

The crop condition of beet is better in Germany, where, since the end of September the temperature has fallen considerably, accompanied by propitious rain. The crops benefited and the harvest was already in full swing early in October. Sugar content is very satisfactory.

In Great Britain and Hungary a good production in proportion to the area under the crop is expected. In Italy, as reported in the last number, a new

agreement has been made between the growers and the *Consorzio nazionale dei fabbricanti di zucchero*, according to which the latter are to purchase a quantity of beets 15 % greater than that agreed on last March because production of beets was very large but of low sugar content. Subsequent to the agreement, however, there has been an increase in weight of the roots accompanied by an increase in the proportion of sugar content and the factories, faced with the pressure occasioned by such abundance, have had to agree to purchase 5 % more than laid down by the second agreement. In the other and less important sugar producing countries crop condition is good and where harvesting has been begun it has proceeded satisfactorily.

*The figures in the following table are supplied
by the « Association Internationale Sucrière » of Vienna.*

COUNTRIES	Sugar beet		Raw sugar	
	1932	1931	1932-33	1931-32
Thousand cents				
Germany	142,827	207,550	23,247	35,160
Austria	20,856	21,410	3,437	3,584
Belgium	37,479	29,233	5,108	4,521
Denmark	26,896	16,259	4,079	2,691
Irish Free State	3,461	768	562	123
Finland	1,102	691	132	93
Hungary	16,535	18,012	2,315	2,761
Italy	48,502	54,961	6,393	7,968
Poland	52,250	60,331	9,281	10,871
Rumania	9,480	7,275	1,372	1,057
Sweden	28,969	18,793	4,665	3,166
Czechoslovakia	80,097	97,662	14,069	17,921
Turkey	2,359	2,275	408	353
Yugoslavia	11,574	13,420	1,604	1,903
Total	482,387	548,640	76,672	92,172
Short tons				
Germany	7,141,270	10,377,370	1,162,330	1,757,960
Austria	1,043,000	1,070,470	171,832	179,180
Belgium	1,900,000	1,462,000	255,394	226,042
Denmark	1,340,000	812,900	204,000	134,530
Irish Free State	173,000	38,410	28,100	6,150
Finland	55,000	34,530	7,000	4,633
Hungary	830,000	900,598	116,000	138,060
Italy	2,400,000	2,748,000	320,000	398,400
Poland	2,610,000	3,016,523	464,000	543,556
Rumania	470,000	360,000	68,580	52,849
Sweden	1,448,000	939,629	233,200	158,304
Czechoslovakia	4,004,810	4,883,030	703,437	896,035
Turkey	118,000	113,800	20,400	18,000
Yugoslavia	579,000	671,007	80,223	95,132
Total	24,112,080	27,428,267	3,834,496	4,608,851

In the U. S. S. R., on the other hand, pulling of the beets is proceeding with difficulty and there is a danger that it will not be completed in good time; where it has been completed the unit yield is low.

In the United States the beet harvest is proceeding regularly.

In this number of the Crop Report is published for the first time the table containing the first estimates of production of beet sugar in the campaign just initiated. The data have been in large part communicated to the Institute in response to the annual enquiry sent to the various Governments and associations of sugar producers. In addition to these data those of the International Sugar Association of Vienna, which we publish separately, have been utilized and where these also are lacking the figures have been estimated from areas cultivated and crop condition. For the U. S. S. R., given the conditions in which the crop was lifted and in view of the information published in the Soviet newspapers, a figure of 70 centals (3.6 sh. tons) per acre has been adopted as the unit yield for calculating the probable sugar production.

It need not be added that these first estimates must be taken with caution and that they will be subsequently modified. They may be taken, however, as giving in a general way a sufficiently close approximation to the truth. According to these first estimates the production of beet-sugar in Europe excluding the U. S. S. R., will in 1932-33 be 11 % less than that of 1931-32 and 26 % less than the average of five years ending 1930-31. Taking into account the U. S. S. R., these percentages do not greatly change.

For North America this season's sugar production will, on the other hand, be 7 % larger than that of last year and 17 % larger than the average.

E. R.

* * *

Germany : Sugar beet have benefited by the rainfall towards the end of September.

Austria : The foliage of sugar beet has been withered by the dry weather. The bulbs have increased little in bulk. Lifting has commenced in some places.

Crop condition on October 1 was 2.9 against 2.5 on September 1, 1932 and 2.4 on October 1, 1931.

Belgium : Beet yields are expected to be above the normal ; sugar content, however, leaves something to be desired ; some plants have gone to seed.

Spain : Production of beet is estimated to be smaller than that forecast in September due to the extension of attacks of « cercospora » ; low temperatures and excessive rain have moreover, hindered the normal ripening of the roots. It is anticipated that quality will be unsatisfactory ; the harvest is backward.

Irish Free State : The variable weather conditions during September did not retard harvesting operations, which were practically completed at the end of the month. No serious damage by pests or disease is reported.

France : The continuance of fine, seasonal weather has been favourable for the lifting of sugar beet. Prospects are very encouraging, despite the great irregularity of yields.

Great Britain and Northern Ireland : In England and Wales the yield per acre and sugar content of sugar beet are expected to be about average.

Hungary : During the first week of October, the lifting of sugar beet was in progress. The most recent estimate of production made on October 5 only slightly reduces that made on September 14 due to the drought.

Lithuania : The weather conditions in September and at the beginning of October were very favourable for the growth of sugar beet.

U. S. S. R. : On October 1 the lifting of sugar beet had been accomplished on 622,000 acres, that is, 15.4 % of the area under sugar beet. For the Ukraine the percentage was 11.7.

There is still a lack of general information on the forecasts of production of sugar beet. A publication of the Commissariat for Agriculture, dealing with the area lifted up to September 25 in the Ukraine and in the central Black Earth region (which comprises nearly the whole of the sugar beet area in the U. S. S. R.), notes that the work of lifting is being effected slowly and that unless it is hastened it will not be possible to terminate it during the period fixed by the authorities. It observes moreover, that the data for the central Black Earth region (which are also characteristic of the situation in the Ukraine), show another side to the situation. A comparison between the data of quantity of sugar beet harvested up to the present and the area from which these quantities have been obtained, lead to the conclusion that the yield per acre, instead of the 131.1 centals (6.6 short tons) per acre forecast in the plan for this region, is only 65.1. (3.3) To a considerable extent, these not very high yields per acre are the consequence of considerable losses incurred during the lifting of the crop.

United States : Harvesting of sugar-beet advanced in the West during the last week of September. In the last week of September sugar cane continued to make good to excellent progress in Louisiana.

India : Rainfall during September was irregular in the United Provinces ; there was damage by floods in some areas but others were in need of rain ; crop condition was fairly good at the end of the month and prospects were favourable.

Rainfall varied also in the Punjab and on October 3 condition was average to good on irrigated areas and below the average to average on those unirrigated. Heavy rains fell also in Bihar and Orissa, condition varying according to region, but being good on October 3 in Orissa and Chota Nagpur.

Egypt : The sugar cane crop is growing satisfactorily and the early cultivations are maturing and are being cut for local consumption. Crop condition as on 1 October was at 103, against 102 as on 1 September, 1932 and 101 as on 1 October, 1931.

VINES

In the three most important viticultural countries of the Mediterranean basin and in Portugal, the very warm, dry weather experienced in the latter half of August predominated also in the first half of September : subsequently, beginning with heavy rain towards the 20th. of the month, marked and persistent disturbances of the weather affected large areas, causing, in the countries mentioned above, sometimes notable damage and further delaying the vintage when it was about to begin.

Precipitation was particularly heavy and widespread in the four southern wine producing departments of France ; extensive floods were the cause of grave

damage, particularly in Hérault and Gard. At the beginning of October the weather improved throughout France and the vintage was continued actively in the first half of the month though hindered by copious rain in some areas of the South. French wine production, which a month ago was estimated at 1000-1,100 million Imperial gallons (1,200-1,300 million American gallons), may, under the influence of this ensemble of unfavourable circumstances, be reduced; it is, however, difficult at this moment to make a sufficiently precise estimate; the magnitude of production, which a private estimate places as low as 900 million Imperial gallons (1,100 million American gallons), will not be known until after the producers have made their declarations.

Vines.

COUNTRIES	AREA					PRODUCTION							
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average to 1930	1932	1931	Average to 1930	% 1932	
				1931	Average							1931	Average
1,000 acres			= 100	= 100	1,000 Imperial gallons			1,000 Amer. gallons			= 100	= 100	
Germany . .	205	204	201	100.3	101.6	...	62,463	40,928	...	75,012	49,151	...	...
Bulgaria . .	222	217	199	102.3	111.7	x) 57,722	1) 61,769	x) 35,007	x) 69,318	1) 74,179	1) 42,041	93.4	164.9
Spain . . .	2) 3,526	3,526	3,460	100.0	101.9	x) 406,453	1) 419,583	1) 481,258	x) 488,114	1) 503,881	1) 577,948	96.9	84.5
France . .	3,867	3,829	3,749	101.0	103.2	...	1,305,136	1,161,878	...	1,567,350	1,395,312	...	...
Italy. . (u)	2,055	2,007	2,051	102.4	100.2	945,895	731,146	866,401	1,135,934	878,041	1,040,470	129.4	109.2
Luxemburg. (m)	7,782	7,918	8,572	98.3	90.8								
Czechoslov.	3	3	3	99.0	78.4								
Syria a. Leb.	47	45	42	105.8	111.8	...	1,880	1,139	...	2,258	1,367	45.0	74.4
Algeria . .	2) 773	2) 771	2) 564	100.2	137.1	373,958	348,808	248,229	449,090	418,887	298,101	107.2	150.7
Tunis . . .	2) 99	2) 87	2) 72	113.5	137.3	32,996	15,398	19,255	39,626	18,492	23,123	214.3	171.4

u) Unmixed crop. — m) Mixed crop. — 1) Must. — 2) Area bearing. — 3) The June estimate has been reduced on the basis of the correction made in the estimate of the area bearing in 1931.

The alcoholic degree of the product is lower than last year, particularly in the entire southern area. The delay to the vintage has retarded the commercial season, contributing indirectly to the firmness of the home market.

In Italy, harvesting was also delayed by 15 to 25 days according to area. Rainfall, which was scattered and generally light in the period September 10-20, fell heavily in the last ten days of the month except in southern Italy. In the first two weeks of October the weather was on the whole unfavourable for ripening; while, in Sicily and Apulia the vintage proceeded regularly, in Tuscany violent winds, hailstorms and torrential rain damaged the fruit and seriously hindered work. The official forecast of 946 million Imperial gallons (1,136 million American gallons) referring to the end of September, may, due to the subsequently unfavourable course of the season, be rather too high; this estimate of

wine production exceeds that of 1931 by about 29 % whereas it is now generally calculated that the percentage should be about 20 %.

Quality is inferior to that of last year ; it is, in fact, feared that in some areas of northern and central Italy the product will hardly reach the minimum alcoholic degree required for sale and fixed by the law as from November 1, 1932 onwards, at 10° for red wine and 9° for white wine. Supplies of old wine are being rapidly exhausted and market quotations are maintained firm with a local tendency to rise.

The area affected by the cyclone at the end of September in western Europe, also included part of the Spanish vineyards which were, in places and to a varying degree, damaged by the adverse conditions and low temperature ; in the Mancha area, the night frosts caused varying damage to the plants. The too abundant rain was prejudicial to the quality of the wine which promises to be generally inferior ; the vintage at the beginning of October was fairly well advanced. The first estimate of production of must is 3 % below the figure for 1931 (which was a year of poor production) and 15-16 % below the average production of the quinquennium 1926-30. Prices are well maintained.

As regards the other European countries, in Central Europe production is expected to be rather below that of 1931 ; in southeastern Europe the situation varies and in general forecasts are less favourable than those previously published.

In the French North African possessions, where the course of the season has on the whole been very favourable to viticulture, wine production is reported to reach a record level ; Algeria, whose production may contribute to partly compensate for the French production deficit, reports, in fact, a quantity of wine approaching 374 million Imperial gallons (449 million American gallons) compared with nearly 248 (298), the average for the quinquennium 1926-30.

The above summary of information leads to a revision of the forecast of the total wine production of the northern hemisphere published in the September Report : it is probable that the total production of this hemisphere is about 2-3 % below the first estimate (3,300 million Imperial gallons ; 4,000 million American gallons) and apparently not much below the average of the quinquennium 1926-30 (3,250 million Imperial gallons ; 3,900 million American gallons).

M. C.

* * *

Germany : Thanks to the warm weather in September grapes made generally good growth. According to estimates based on the preliminary vintage results, the new production of wine should not reach the quantity of last year. As regards quality however, quite satisfactory results may be anticipated.

Austria : Maturity of the fruit was accelerated during September by warm, sunny weather. The extraordinary drought checked the normal growth of the fruit, particularly in Styria and Burgenland. The must has a rather high sugar content. Wine production this year will be considerably below that of last year.

Crop condition on October 1 was 2.4 against 2.3 on September 1 this year and on October 1, 1931.

Spain : The grape crop promises to be average but its quality is poor.

France : The vintage began in the South towards 20 September ; the preliminary results have been deceptive as regards quality and quantity. Towards the end of the month severe storms and floods during the vintage in the South seem to have diminished yields. Some damage has also been caused by mildew in many regions.

Hungary : During the first week of October the fruit was everywhere ripe. In some districts the warm, dry weather scorched the grapes. On small holdings the vintage has already begun.

Italy : Vintage results are fairly good as regards quantity but poor as regards quality.

Production of grapes for wine this year is 152,085,200 centals, representing an increase of 20.0 % on that of last year (126,722,900 centals) and an increase of 9.8 % on the average of the five years ending 1930 (138,450,600 centals).

Luxemburg : The vines which had given promise of good yields have been ravaged by cryptogamic disease, particularly by vine moth and eudemis. In some districts violent storms accompanied by hail have caused fairly considerable damage. As the rotting of the fruit extended the vintage was begun earlier.

Portugal : Storms towards the end of September have caused fairly large damage to the fruit ; production will be considerably below that of last year. The vintage is in progress.

Rumania : At the beginning of October the vintage was in progress. The warm weather had a very favourable influence on the quality of the must.

Switzerland : According to the estimates of the Swiss Viticultural Society, the production of red wine in German Switzerland will be at least about $\frac{1}{3}$ less than in 1931 ; that of white wine is expected to reach $\frac{3}{4}$ of the 1931 production.

Syria and Lebanon : In Lebanon the hail and frost have compromised yields in all areas except on the coast where the yield is normal. In Iatakia also the prolonged drought has reduced yields. In the Djébel Druze area the weather conditions have been favourable to the vines.

Algeria : The vintage is in progress in elevated regions. The first results give hope of an abundant crop of good quality.

Australia : In the following summary are given data of wine production and trade in 1931-32, compared with corresponding figures for 1930-31 and the average of the period 1925-26 to 1929-30 :

Wine production and trade in Australia.

		1931/32	1930/31	Average 1925/26 to 1929/30	% 1931/32 1930/31 = 100	Av. = 100
		Thousands				
Production	(Imperial gallons) .	12,920	13,078	17,732	98.8	72.9
	(American gallons) .	15,516	15,706	21,294		
Exports	(Imperial gallons) .	3,476	2,208	2,500	157.4	139.0
	(American gallons) .	4,174	2,652	3,003		
Imports	(Imperial gallons) .	8.7	15.5	82.1	56.2	10.6
	(American gallons) .	10.5	18.6	98.6		

Of the production of 12,920,000 Imperial gallons (15,516,000 American gallons) in 1931-32, the quantity to be used for distillation purposes is 6,228,000 (7,479,000).

OLIVES

Greece : According to the first forecast, production of olive oil this season is estimated at 2,535,000 centals (33,316,000 American gallons). This crop exceeds those of all former years except the record-crop of 3,153,000 centals (41,427,000 American gallons) obtained in 1920. Moreover it exceeds by 11 % that of last year (2,286,000 centals ; 30,042,000 American gallons) and by 40 % that of the average of the five years ending 1930 (1,811,000 centals ; 23,796,000 American gallons).

Italy : Growth was good in September.

A recent and reliable estimate of oil production from this year's olive crop is slightly larger than that of last year, which was 4,827,000 centals (63,430,000 American gallons). In general, the largest percentage increases will be recorded in central Italy, whereas in southern and insular Italy, where insect pests caused damage, production will, on the contrary, be inferior to that of last year.

Portugal : The olives suffered extensive damage towards the end of September due to storms. Falling of fruit was especially notable in the northern and central areas of the country. In the South, on the contrary, the rain was beneficial. Very considerable damage has also been caused by *Dacus oleae*. For the whole of the country a poor crop is in prospect.

Syria and Lebanon : In Lebanon the olives did not flower so well. In Latakia the prolonged drought caused some damage. On the whole, crop condition in Syria, Lebanon and Latakia towards mid-September was bad whereas it was good in August this year and also in September 1931.

Algeria : The recent heat has provoked the extensive falling of fruit, particularly from trees exposed to the south wind.

COTTON

According to the third official report based on crop condition on 1 October, production in the United States is estimated to be 1 %, about 550,000 centals (115,000 bales) larger than the September estimate. Since the average of the private estimates and the information coming from the Belt as a whole in September had on the contrary indicated a reduction, this new estimate has had a bearish effect on the market and prices have more or less returned to their August level. Even if the estimated production is almost 27,100,000 centals (5,670,000 bales) less than last year, the situation is on the other hand influenced by the great abundance of old crop stocks ; at the same time an improvement in consumption in relation to last year and the fact that offers are relatively less abundant, the growers preferring to hold up their product, are factors tending to maintain prices.

The standing crop generally made good progress in the first decade of October, which was cold throughout the Belt, and picking was enabled to be carried out in satisfactory conditions, save in certain localities where heavy rains and killing frosts caused damage and hindered operations. Ginnings are well advanced in relation to the total figure of production but nothing is yet known as to the grade and staple.

Cotton.

COUNTRIES	AREA						PRODUCTION OF LINT							
	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33		1932/33	1931/32	Average 1926/27 to 1930/31	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33		
				1931/ 1932	Aver- age							1931/ 1932	Aver- age	
1,000 acres			= 100	= 100	1,000 centals			1,000 bales of 478 lb			= 100	= 100		
Bulgaria . .	30	13	12	226.5	244.7	53	23	16	11	5	3	225.6	327.3	
Spain . . .	20	14	22	138.6	88.7	19	16	21	4	3	4	117.7	90.8	
*U.S.S.R. . .	5,787	5,346	2,503	108.2	231.2	...	8,812	5,695	...	1,843	1,191	...	...
U. S. A. . .	36,611	40,693	44,690	90.0	81.9	54,611	81,719	70,904	11,425	17,096	14,834	66.8	77.0	
Mexico . . .	156	319	465	48.8	33.5	416	989	1,186	87	207	248	42.0	35.0	
*India . . .	118,466	119,654	121,135	94.0	87.4	...	3,401	4,558	...	16,256	21,789	...	...
*Syria & Leb.	25	75	51	32.9	48.4	...	81	47	...	17	10	...	...
Algeria . .	2)	5	14	6.8	2.2	1	6	28	3)	1	6	15.4	3.6	
Egypt . .	1,135	1,747	1,861	65.0	61.0	4,155	6,153	7,649	869	1,287	1,600	67.5	54.3	
TOTALS . .	37,954	42,791	47,064	88.7	80.6	59,255	88,906	79,804	12,399	18,599	16,695	66.6	74.3	

* Countries non included in the totals. — 1) Estimate of the second report. — 2) Area inferior to 500 acres. — 3) Production inferior to 500 bales.

On 3 October the Egyptian Government published the first estimate of production, on the whole much the same as private estimates but higher as regards long staple varieties, which has caused a certain fall in prices. The estimated production is 4,155,000 centals (869,200 bales) of ginned cotton, 32.5% less than last year; in relation to the average of the five seasons 1926-27 to 1930-31 the decrease is 45.7%. On the other hand the decrease in cultivated area is respectively 35.0% and 39.0%. This means that yields this year are better than last but below average. This year the Government has modified the classification of cottons, dividing them according to length in inches of the fibre and eliminating the short-staple classification, wrongly given to Upper Egypt varieties last year. The classification now adopted is almost the same as that proposed by Todd in January 1932 and divides the expected production as follows: long staple cottons above $1\frac{3}{8}$ inches 1,525,000 centals (319,100 bales), against 1,872,000 centals (391,600 bales) in October 1931, of which 1,070,000 centals (223,800 bales) Sakellaridis, against 1,347,300 centals (281,900 bales) in 1931 and the rest *Maarad*, *Sakha* 4, *Giza* 7 and *Casulli*; 350,400 centals (73,300 bales) of long medium staple over $1\frac{1}{4}$ inches (*Fuadi*, *Nahda*, *Pilion*, *Giza* 3), that is about the same quantity as last year; 2,279,000 centals (476,800 bales) of medium staple over $1\frac{1}{8}$ inches (*Zagora*, *Ashmuni*, etc.), against 4,131,000 (864,300) in October 1931. For purposes of comparison, it may be interesting to know that the cottons of $1\frac{1}{8}$ and over produced in the United States do not reach even a proportion of 5% of the total ginnings. The final production of Sakellaridis during the last three seasons has decreased constantly, from 581,000 bales in

1929-30 to 455,000 in 1930-31 and 273,000 bales in 1931-32. This fact is to be explained by the contraction in the demand for this cotton and, in part only, by the competition of Sakellaridis from the Sudan. To terminate this state of affairs and because the Government stocks included a large quantity of Sakellaridis, it was decided in February 1931 to prohibit the cultivation of Sakellaridis outside certain areas north of the Delta (see Report for April 1931) which are the most suitable for this variety. The Sakellaridis area was subsequently reduced to 30 % of the cultivated land belonging to each proprietor (see Report for October 1931). This explains the ultimate reduction of production in the current season. At the same time the maximum area of other varieties was reduced to 25 % of the cultivated land of each proprietor. But at the beginning of the current month the Government decided to diminish the restriction on Sakellaridis, permitting the cultivation of 40 % of the land in the districts reserved for this variety in the North of the Delta. As regards the other varieties the maximum area has been revised to 50 %. In this way the potential area of Sakellaridis has been increased by one-third and that of other varieties has been doubled.

The crop is making good progress and picking has been effected more carefully than last year. Ginning is also proceeding satisfactorily, the Government having decided to apply to the cotton crop this year also the reduction of 50 % in the fixed duty on cotton produced in Egypt introduced by the decree of 8 September 1931, for last season's crop. Deliveries at Alexandria are much smaller than those of last year as are also the stocks in the ginning factories, particularly in Upper Egypt. The statistical position is on the whole healthy and the market is firm and active after the fall in prices following the publication of the American estimate.

The Government of India on 20 October published the second estimate of the cotton area in the current season. According to this estimate, which comprises the total cotton area of India and in general refers to the areas sown up to October 1, the area is 18,466,000 acres against 19,654,000 at the same period of last year, representing a diminution of 6 % from the latter figure and 12.6 % from the average of the five seasons 1926-27 to 1930-31 (21,135,000 acres). The crop is in good condition and production is forecast to be larger than that of last year, which was mediocre.

The news from China justifies the anticipation of a good crop exceeding that of last year, which was greatly damaged by floods.

I. S.

* * *

United States : In the week ended on September 22 cotton picking generally made good advance. Premature opening of bolls was frequent in some parts of the country. In the last week of the month, temperatures were near normal and rains were rather frequent, retarding picking and ginning in many areas. In Texas, there were further complaints of rotting, especially in the wet central counties and weevil activity was favoured. In Oklahoma bolls continued to open rapidly, some prematurely; picking and ginning were well advanced in the East and satisfactory in the West. In Georgia practically all the cotton was open and bolls were opening fast in the Carolinas and Virginia; in these eastern States the week was, apart from some showers, mostly favourable for picking and ginning.

In the first week of October picking was well advanced in the eastern section of the cotton belt but was delayed by wet weather in the central and western sections. In the second week harvesting proceeded under good conditions; a slight frost was, however, reported. Picking was well advanced on October 27.

The condition of the crop on 1st October was reported at 54.2 % of normal compared with 69.3 % on 1st October, 1931, and a ten year average condition for 1921-30 of 52.8 %. The condition of crop on 1st September, 1932, was reported at 56.6.

The quantity of cotton, not including linters, ginned from the 1932-33 crop to the close of business on 15 September was 2,637,000 running bales (counting round bales as half bales), against 2,093,000 in 1931, 3,736,000 in 1930, 3,352,000 in 1929, 2,501,000 in 1928 and 3,505,000 in 1927. To the close of business on 30 September: 4,835,000; against 5,410,000 in 1931; 6,304,000 in 1930; 5,903,000 in 1929; 4,961,000 in 1928 and 5,945,000 in 1927.

Cyprus : At the middle of September picking was well advanced and a good crop was being harvested, but, owing to the restricted area, production this season will be below the average.

India : Rainfall was irregular in Bombay Presidency during September; on October 8 the crop outlook was satisfactory in Konkan, the South Deccan and the Karnatak. Beneficial rains fell in the latter half of the month in the Central Provinces and on October 8 crop condition was improving. According to a telegram of September 29 from the Government of the Punjab, cotton picking had commenced and crop condition was generally average to good. Crop condition in Madras was fair on September 24 and an official telegram of October 7 estimated the cotton area at 822,300 acres compared with 621,000 in 1931-32 and 748,500 on the average for 1926-27 to 1930-31; percentages: 132.4 and 109.9. In a later telegram of October 10, the estimated area under cotton was stated to be 2,050,000 acres compared with 2,257,000 in 1931-32 and 2,379,000, the average for the preceding five seasons; percentages: 90.8 and 86.2.

Egypt : Weather conditions in September were in general favourable for maturing and opening of the bolls. In Lower Egypt the humidity and coolness of the nights have caused some damage to late crops. Attacks by worm are less intense than in previous years. Picking is general but about ten days later than usual. The results of the first picking are satisfactory and indicate yields equal to or above those of last year, except in the case of Sakellaridis, which is slightly inferior. The second picking promises a satisfactory yield given favourable temperatures in October but it is anticipated that in Upper Egypt it will not be very large as the crop has suffered from the extreme heat and the long intervals between irrigations in June and July. Ginning yields are a little larger than last year except in Upper Egypt, where they are smaller.

Cotton ginned in September, in bales of 478 lb. net weight:

Varieties	1932	1931	1930	1929	1928
Sakellaridis	5,730	4,230	8,430	14,320	30,780
Other varieties above :					
1 3/8"	4,570	71,440	146,650	156,450	181,490
1 1/4"	3,130				
1 1/8"	73,070				
Total	86,500	75,670	155,080	170,770	212,270
Scarto (linters)	1,270	1,330	2,060	2,260	3,540

Uganda : With the exception of the Northern Province and the northern areas of Teso district, dry conditions prevailed during the first three weeks of August over the greater part of the cotton areas. Whilst this interfered with planting to some extent, it is considered that the general effect on the earlier sowings will have been good in that normal root development will have been encouraged. In general it can be stated that the condition of the crop is about normal.

Union of South Africa : Production of ginned cotton in 1931-32 is estimated at 13,300 centals (2,780 bales) against 32,490 (6,800) in 1930-31 and 43,240 (9,050), the average of the five years ending 1929-30, decreases of 59 % and 69 % respectively.

FLAX

Cultivation of flax for seed has this year undergone a marked regression in almost all the flax-growing countries of Europe (excluding the U. S. S. R., where the area sown on 20 June 1932 was almost equal to that of last year). The tendency to diminution in the area devoted to the crop that has been apparent in Europe for some years has been accentuated this season so that the total area sown this year to flax is less than that last year and considerably below the average. As regards European production also the data at present available, which relate to almost all the producing countries save Poland, France, the Netherlands and some other countries of minor importance, indicate a total inferior to that of last year and very considerably inferior to the five-year average.

In North America weather conditions, though less unfavourable than the extremely bad conditions of last year, have permitted only poor yields to be obtained. In fact, while the total area under flax in Canada and the United States was 5.7 % greater than in 1931 and 12.1 % below the five-year average, the production of these two countries increased by 19.5 % with respect to 1931 but decreased by 34.1 % with respect to the average.

In India weather has been generally favourable to the crop, the area of which is fairly constant. Production this year was 9.0 % above that of last year and 10.2 % above the average.

In Argentina, according to an official report of 22 September it is estimated that the crop has been destroyed by locusts over an area of 1,111,990 acres. After having invaded the two provinces of Santa Fé and Entre Rios, the most important producing areas of the country, the locusts reached the province of Buenos Aires, where serious losses are also expected. Taking into account that the area sown this year in Argentina was 15.3 % less than that of the preceding season and only slightly less than the average, the production of the current season, due to rather unfavourable weather and particularly to locust damage, will be rather poor. According to a private estimate there is a calculated production of 33,000,000 centals (59,000,000 bushels), that is, inferior both to that of last year, which was 47,858,108 centals (85,461,140 bushels), and to the five-year average of 41,460,272 centals (74,036,401 bushels).

At the present time the official estimate of area sown this year in Uruguay is not yet available but there is good ground for believing that in that country as well as in Argentina there will be a decrease with respect to last year.

Flax.

COUNTRIES	AREA					PRODUCTION											
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932					
				1931	Average							1931	Average				
														1931	Average	1931	Average
1,000 acres	= 100	= 100	1,000 centals	1,000 pounds	= 100	= 100											

Fibre.

Germany . . .	11	16	38	68.1	29.6	...	117	—	...	11,684	—	...	—
Austria 1) . .	8	8 1/2	10	95.9	74.4	106	107 1/2	146	10,582	10,701 1/2	14,592	98.9	72.5
Belgium . . .	21	36	59	57.9	35.5	149	254	542	14,887	25,370	54,180	58.7	27.5
Bulgaria . . .	2	2	1	98.3	281.1	5	2	2	529	176	152	300.4	348.3
Estonia . . .	36	45	83	80.0	43.8	77	131	208	7,658	13,056	20,826	58.7	36.8
Finland 2) . .	11	10	11	112.5	101.5	...	...	28	...	...	2,845	...	...
France . . .	25	26	79	98.7	32.1	...	138	589	...	13,788	58,875	...	...
N.Ireland . .	6	7	31	81.9	19.5	...	31	131	...	3,091	13,058	...	...
Hungary . . .	20	47	13	41.8	150.6	...	133	65	...	13,264	6,518	...	...
Italy . . .	22	24	38	89.2	56.3	...	50	55	...	5,000	5,533	...	...
Latvia . . .	78	104	150	75.5	52.3	209	287	440	20,378	28,660	43,955	72.8	47.5
Lithuania 2) .	99	139	212	71.5	46.7	271	466	748	27,070	46,628	74,800	58.1	36.2
Netherlands .	5	16	37	29.9	13.1	31	99	252	3,086	9,918	25,153	31.1	12.3
Poland . . .	252	252	281	99.9	89.9	...	756	1,191	...	75,611	119,097	...	...
Czechoslov. .	16	23	46	71.4	35.4	68	75	206	6,814	7,469	20,608	91.2	33.1
U.S.S.R. 3) . .	6,202	5,779	3,457	—	—	...	12,026	7,410	...	1,202,626	740,958	...	...

Linseed.

	Thousand bushels of 56 pounds													
Linseed.														
Austria . .	5	5	7	95.8	70.3	20	19	24	36	33	43	109.4	83.9	
Belgium . .	21	36	59	57.9	35.5	93	182	279	166	326	498	51.0	33.4	
Bulgaria . .	2	2	1	98.3	281.1	7	11	2	12	19	3	61.7	344.8	
Estonia . .	36	45	83	80.0	43.8	85	141	223	152	253	398	60.4	38.3	
Italy . . .	22	24	38	89.2	56.3	...	113	175	...	202	312	...	...
Latvia . . .	78	104	150	75.5	52.3	205	279	411	366	499	735	73.4	49.8	
Lithuania 2)	99	139	212	71.5	46.7	315	562	810	563	1,003	1,446	56.1	38.9	
Czechoslov.	16	23	46	71.4	35.4	51	56	164	91	100	293	90.8	31.1	
U.S.S.R. . .	4) 7,347	7,574	4,528	—	—	...	...	13,135	...	...	23,456	...	...
Canada . . .	454	627	511	72.4	88.8	1,753	1,436	2,422	3,130	2,565	4,325	122.0	72.4	
United St..	2,667	2,325	3,040	114.7	87.7	7,398	6,200	11,453	13,210	11,071	20,452	119.3	64.6	
India . . .	3,241	3,008	3,224	107.7	100.5	9,206	8,445	8,355	16,440	15,080	14,920	109.0	110.2	
French Mor.	61	89	50	68.6	122.4	...	522	252	...	932	450	...	...
Argentina . .	5) 7,314	5) 8,640	5) 7,178	84.7	101.9	...	47,858	41,461	...	85,461	74,037	...	...

1) Production expressed in terms of air-dried stalks. — 2) Average 1927 to 1930. — 3) "Dolgumetz" variety. — 4) Total area of "dolgumetz" flax for fibre and flax for seed sown as on 20 June 1932. — 5) Area sown.

In brief it may be said on the basis of information at present available this season's production (excluding the U. S. S. R., for which no trustworthy data are available but where it appears that there has been a crop almost the same

as that of 1931) will be appreciably below that of last year. This has already influenced the markets in producing countries, prices having since June shown an upward tendency.

A. D. F.

* * *

Great Britain and Northern Ireland: In Northern Ireland reports indicate that the yield of the flax crop will be satisfactory and that the quality will be good. So far very few lots have been scutched but the green flax bulked well at pulling time.

Hungary: The flax stalks are in general short but of good quality. The production of seed is average.

Argentina: According to an official report of September 22, the crop condition of flax varied from fair to good in the principal centres of production. Locusts have caused very considerable damage in the northern area of Santa Fé, and the province of Entre Rios. It is estimated that an area of 1,112,000 acres has been destroyed by this pest.

(Telegram of October 20): The crop condition of flax is, in general, good. The locust invasion has reached the province of Buenos Aires and it is consequently feared that the damage will be more extensive than that already caused in the provinces of Santa Fé and Entre Rios.

HEMP

Hungary: The hemp stalks are generally short but of good quality. Production of seed is average.

Hemp.

COUNTRIES	AREA					PRODUCTION				
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932	
				1931	Aver- age				1931	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	

Fibre.

Germany 1) . . .	1	1	2	107.3	35.3	—	—	—	—	—
Austria	1	1	1	91.6	95.4	1,631	1,728	1,775	94.4	91.9
Bulgaria	12	9	9	133.5	130.1	5,512	4,189	2,992	131.6	184.2
Hungary 4)	17	16	22	107.9	75.0	...	8,763	2,557	...	...
Italy	129	136	223	94.3	57.6	...	125,959	207,682	...	...
Poland	76	76	76	100.0	100.9	...	31,773	44,585	...	...
Czechoslovakia . .	19	21	24	93.5	79.9	10,059	9,189	14,270	109.5	70.5
U.S.S.R.	2,063	2,282	2,193	90.4	94.1	...	...	693,660	...	...
Syria and Lebanon	6	6	6	95.8	87.7	...	3,530	3,784	...	...

Hempseed.

Austria	5)	5)	1	81.6	56.6	154	156	229	99.0	67.3
Bulgaria	12	9	9	133.5	130.1	4,409	3,668	2,397	120.2	184.0
Hungary 4)	17	16	22	107.9	75.0	...	5,493	8,925	...	...
Poland	76	76	76	100.0	100.9	...	47,102	45,597	...	...
Czechoslovakia . .	19	21	24	93.5	79.9	6,476	6,097	10,907	106.2	59.4
U.S.S.R.	2,063	2,282	2,193	90.4	94.1	...	...	1,006,907	...	...

1) Hemp and ther textile plants. — 2) Average 1927-30. — 3) Production expressed in terms of air-dried stalks. — 4) Unmixed crops. — 5) Area inferior to 500 acres.

HOPS

COUNTRIES	AREA					PRODUCTION					
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932		
				1931	Aver- age				1931	Aver- age	
1,000 acres				= 100	= 100	1,000 pounds				= 100	= 100
Germany	20	25	35	78.1	54.8	...	17,152	27,220	...	...
Belgium	1	2	3	69.0	42.7	884	1,148	4,588	77.0	19.3	
Engl. and Wales . .	17	20	23	85.0	71.3	...	18,900	32,278	...	...
Hungary	1)	1	1)	78.2	100.0	...	274	219	...	...
Czechoslovakia . .	24	31	35	79.1	67.8	16,451	27,177	24,911	60.5	66.0	
United States . . .	22	21	23	101.4	93.9	25,315	25,852	30,353	97.9	83.4	

1) Area inferior to 500 acres.

TOBACCO

Hungary : Tobacco production is good as regards both quantity and quality.

Italy : Harvesting progressed well in September and results were good.

United States : Rains in the last week of September somewhat interfered with tobacco cutting in Kentucky and were unfavourable for curing but the condition of the crop in the barns was good.

Tobacco.

COUNTRIES	AREA					PRODUCTION				
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932	
				1931	Aver- age				1931	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	
*Germany	27	26	22	104.5	121.4	—	—	—	—	—
Belgium	7	7	7	94.1	89.6	13,518	14,469	15,026	93.4	90.0
Bulgaria	77	77	73	100.0	104.9	51,258	54,784	54,836	93.6	93.5
Spain	12	9	7	138.4	186.5	13,228	12,991	7,931	101.8	166.8
*Hungary	57	62	56	91.5	101.3	...	80,404	65,104	...	...
*Czechoslovakia . .	25	22	15	110.5	163.6	...	30,495	17,729	...	...
*U.S.S.R.	449	450	222	99.7	202.0	...	...	320,968	...	...
United States . .	1,447	2,030	1,847	71.3	78.4	1,011,581	1,600,910	1,413,742	63.2	71.6
Japan	84	90	90	92.5	92.6	138,671	155,757	143,138	89.0	96.9
*Syria and Lebanon	12	19	8	61.3	150.0	...	11,671	5,103	...	...
Algeria	52	57	61	91.5	85.6	39,683	39,863	49,852	99.6	79.6
TOTALS	1,679	2,270	2,085	74.0	80.5	1,267,939	1,878,773	1,684,525	67.5	75.3

* Countries not included in the totals.

OTHER PRODUCTS

Tea.

India : In North India good growing conditions were experienced during August. The prospects of the crop at the end of the month were fairly good. Statistics to the end of August recorded an increase of 18 ½ million lb. as compared with the outturn to the same date of last year.

In South India mild monsoon conditions prevailed during August and crop prospects were quite fair; the outturn to the end of August was 15.88 % ahead of that to the same date of last year.

Coffee.

Mexico : Crop condition during August was good and production was anticipated to be larger than in previous years.

Dominican Republic : Harvesting has been effected under favourable conditions. An abundant crop of good quality is anticipated.

Cacao.

Dominican Republic : The spring crop was satisfactory; the winter crop promises a normal yield.

Gold Coast : At the end of August harvesting of the minor crop was finished and the last of the crop was being marketed. On the same date some 17,500,000 lbs. of new crop had been shipped, and stocks reputed to be held by merchants amounted to 9,900,000 lbs. According to district reports these figures represent 95 % of the crop, so that the total amount marketed during the four-month period June-September will be in the region of 28,700,000 lbs. The export tonnage during the past four months did not afford a reliable measure of minor crop production, as over 17,900,000 lb. of last major season cacao remained in store.

The major crop season was beginning early, some 5 % being ripe at the end of August, and in some localities harvesting had commenced. September shipments therefore will probably include a percentage of 1931-32 major crop, 1932 minor crop, and some of the 1932-33 major crop cacao. The early promise of high yields has been offset to some extent by the adverse effects of the dry spell, particularly in the northern areas where some of the youngest pods were unlikely to reach maturity. The bulk of the crop was maturing early, and an abrupt conclusion might be anticipated. The production could not be assessed with any accuracy yet, as the dry spell also tended to speed up the ripening process, and smaller pods may result in a consequent diminution in yield. It was estimated that the average percentage production for all the cacao areas for the next three months would be as follows:

	August	September	October	November
Normal year	—	10 %	20 %	30 %
This year	2 %	20 %	25 %	35 %

The percentages were worked out from actual counts of pods at different stages of development visible at that time in 43 observation plots within the cacao areas. The plots represent cacao fields of different ages, qualities, situations, disease incidences

etc., and should afford a reliable picture of the cacao crop as a whole, if the half mature pods on trees develop normally.

Crop movement has been as follows (in thousands of pounds):

	August 1932	October 1931 to August 1932	August 1931	October 1930 to August 1931
Arrivals by rail at Takoradi and Accra . .	2,594	256,047	900	269,523
Shipments from Takoradi and Accra . . .	10,593	345,308	4,682	383,328
Shipments from all ports	13,810	444,695	7,213	473,832
Stocks at Takoradi and Accra beach at the end of August	11,482	—	...	—

Groundnuts.

Argentina : The sowings are being carried out under satisfactory conditions.

United States : Production of groundnuts for nuts is estimated at 1,019 million lbs. compared with 1,083 million in 1931 and 811, the average for 1926-1930. Percentages : 94.1 and 125.6.

India : Crop condition in Madras was fair on October. Rainfall was irregular in Bombay during September ; on October 8 the crop outlook was satisfactory in Konkan, the South Deccan and the Karnatak.

Egypt : Early cultivations of groundnuts are in the maturing stage and are expected to be harvested about the middle of October. The other cultivations are in the stage of grain formation. The condition of the crop is satisfactory : 100 at 1 October and 1 September, against 99 at 1 October 1931.

Colza and sesamum.

Austria : Sowing of winter colza has been finished, particularly in Styria.

Hungary : Due to the drought, the germination of winter rapeseed has been poor and irregular. Here and there, as a result of damage to the sowings by insects, it has been necessary to re-sow.

Mexico : The sowings of sesamum have been effected under good conditions in the principal areas of production. Crop condition was generally satisfactory except in some areas of minor importance.

India : According to a report dated September 22 received from the Department of Commercial Intelligence and Statistics, seasonal conditions of the sesamum crop at sowing time were not quite favourable but the condition of the crop on the whole, was reported to be fairly good.

Syria and Lebanon : The area sown to sesame this year is 7,000 acres compared with 8,900 in 1931 and 17,800, the average for 1926 to 1930. Percentages : 78.7 and 39.1.

Jute.

India : On September 20 the cutting, steeping and washing of jute in Bengal was near completion.

Sericulture.

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932	
				1931	Aver- age				1931	Aver- age
1,000 ounces			= 100	= 100	1,000 pounds			= 100	= 100	
Bulgaria	28	22	43	122.9	64.0	2,866	2,446	4,741	117.2	60.5
*Spain	13	—	27	—	47.2	1,199	—	2,031	—	59.1
Italy	582	701	982	83.0	59.3	70,548	75,968	111,278	92.9	63.4
Korea s)	228	222	196	102.6	116.4	29,318	27,603	22,437	106.2	130.7
Japan s)	2,591	2,806	2,615	92.3	99.1	375,332	435,419	407,819	86.2	92.0
Syria and Lebanon f)	3,045	3,158	3,534	96.4	86.2	331,384	367,114	385,838	90.3	85.9
	60	79	99	76.0	60.8	4,575	6,085	7,315	75.2	62.5
TOTALS . . .	6,534	6,988	7,469	93.5	87.5	814,023	914,635	939,428	89.0	86.7

* Countries not included in the total. — s) Spring cocoons. — f) Summer-autumn cocoons.

FODDER CROPS

The weather during September was on the whole favourable to fodder crops in nearly all European countries, as in most of them, subsequent to dry and rather warm weather at the beginning of the month, rain fell, sometimes heavily in many regions, benefiting particularly the pastures and permanent meadows. The unfavourable effects of the dry, warm weather were however felt in some countries of southeastern and central Europe, in which the drought lasted longer than in other countries: Yugoslavia, Bulgaria, Rumania and also partly in Hungary and Austria.

In the United States pastures in many parts of the country suffered from drought at the end of September.

* * *

Germany: Generally dry, sunny weather in September was very favourable for the growth of fodder crops. Some isolated damage caused by drought was made up for by precipitation during the latter half of September. Yields from the second cutting of meadows and clover, which were mostly carted rapidly and under good conditions, are satisfactory almost everywhere. Fodder grasses, meadows and pastures have grown again well.

The first estimate of production of mangolds this year is 663,130,000 centals (33,156,000 short tons) compared with 657,545,000 (32,877,000) in 1931 and 549,909,000 (27,495,000) on the average for the period 1926 to 1930; percentages: 100.8 and 120.6.

Austria: Mangolds have grown only a little during September due to the dry weather. The third cutting of clover and alfalfa, which formed practically the only source of green fodder during September, gave generally poor yields. The yields of

the second and third cuttings of permanent meadows giving more than one crop were also low, especially in eastern areas. It was possible to utilise alpine pastures for a relatively long period; in places, however, livestock could not be kept there owing to the lack of water. Most of the pastures in the plains and valleys are completely dried up.

Belgium: Following rainfall during September, the growth of fodder plants renewed vigorously.

Estonia: During September the weather conditions were favourable to the fodder crops.

Condition of Fodder Crops.

CROPS AND COUNTRIES	CROP CONDITION (†)								
	October 1, 1932			September 1, 1932			October 1, 1931		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
CLOVER:									
Germany	2.7	—	—	2.8	—	—	2.6	—	—
Austria 1)	2.8	—	—	2.8	—	—	2.8	—	—
Netherlands	—	—	2) 65	—	—	2) 67	—	—	—
ALFALFA:									
Germany	2.6	—	—	2.7	—	—	2.6	—	—
Austria	—	—	3.2	2.8	—	—	2.8	—	—
MANGOLDS:									
Germany	2.6	—	—	2.6	—	—	2.5	—	—
Austria	2.9	—	—	2.7	—	—	2.4	—	—
Lithuania	3.7	—	—	3.6	—	—	3.3	—	—
Sweden	3.5	—	—	3.3	—	—	—	—	2.9
TEMPORARY MEADOWS:									
Austria 3)	—	3.0	—	—	—	3.1	2.7	—	—
Sweden 4)	3.5	—	—	3.4	—	—	3.5	—	—
PERMANENT MEADOWS:									
Germany { irrigated meadows	2.4	—	—	2.5	—	—	2.5	—	—
other meadows	2.7	—	—	2.8	—	—	2.8	—	—
Austria	2.9	—	—	—	—	3.1	—	3.0	—
Sweden 4)	—	3.0	—	—	—	2.8	—	—	2.8
PASTURES:									
Austria	—	—	3.3	—	—	3.3	—	—	3.2
Netherlands	—	—	2) 75	—	—	2) 75	—	—	—
United States	—	—	67.1	—	—	67.6	—	—	63.5

a) above the average. — b) average. — c) below the average. — d) excellent. — e) good. — f) average. — g) bad. — h) very bad. — †) See explanation of the various systems on page 651 — 1) Red clover. — 2) At the middle of the preceding month. — 3) Klee grass. — 4) Meadows for hay.

Irish Free State: The weather conditions experienced during September were variable. Yields of hay were well up to average. Root crops made satisfactory progress.

France: The beneficial rains in the latter half of September allowed grass to recover in those regions, such as Normandy, where it had been completely dried up. Cutting of the aftermath has been terminated under generally good conditions for both quality and quantity save in the South where numerous storms caused considerable destruction.

Great Britain and Northern Ireland: In England and Wales September weather was unsettled. Aftermaths have been generally good but second cuts for hay have not been taken to any unusual extent owing to the abundance of the first crop. Grass

continued to be plentiful during the month. Roots made good progress and their condition improved; size of the roots is good except in some districts where weeds are prevalent. Mangolds are expected to yield $17\frac{1}{2}$ tons per acre as compared with a ten-year average of 19 tons. It is anticipated that turnips and swedes will yield $12\frac{1}{2}$ tons per acre, this figure equalling the ten-year average.

In Northern Ireland mangels grew out well during September except in a few areas where growth was retarded somewhat by the cold spell. The turnip crop has not proved so satisfactory but the prospects of a good crop are better now than was the case two months ago and, given favourable weather during October, the yield should be of at least average dimensions. Supplies of hay marketed during the month were lighter than was the case during the corresponding period of last year but the quality generally was good. Pastures generally were very good for the season of the year and succulent herbage of excellent quality was plentiful.

In Scotland the weather was mild and rather wet. Pastures continued fresh and green while turnips made rapid and vigorous growth generally. Prospects for root crop production improved in September.

Production of turnips and mangolds in England and Wales is estimated as follows:

	1932	1931	Average 1926-1930	% 1931 = 100	% 1932 Average = 100
Turnips (ooo centals)	163,408	156,330	205,176	104.5	79.6
(ooo short tons)	8,170	7,816	10,259		
Mangolds (ooo centals)	90,675	101,315	131,941	82.3	68.7
(ooo short tons)	4,534	5,066	6,597		

Hungary: The warm, dry weather in the latter half of September hindered the normal growth of the mangold crop. Rainfall in the first few days of October improved the crop. Lifting has begun. The last cutting of clover and alfalfa has given poor yields. The second cutting of permanent meadows has also given a yield below average. Pasture grass has recovered in growth as a result of the recent rains.

The germination of winter fodder crops is slow.

Italy: Sowings of autumn-winter fodder catch-crops were continued in September. Growth of the crops, which benefited from the rains, continued to be good. In the South and in the Islands meadows and pastures are in rather bad condition.

Lithuania: The warm weather and sufficient precipitation have favourably affected fodder crop production.

Norway: Production of the principal fodder crops in 1932 compared with last year and the five-year average is as follows:

	1932	1931	Average 1926-1930	% 1931 = 100	% 1932 Average = 100
Permanent mead-ows (hay) (ooo centals)	8,863	9,629	11,742	92.1	75.5
(ooo sh. tons)	443	481	587		
Temporary mead-ows (hay) (ooo centals)	43,650	46,139	39,988	94.6	109.2
(ooo sh. tons)	2,182	2,307	1,999		
Turnips (ooo centals)	13,457	11,420	10,356	117.8	129.9
(ooo sh. tons)	673	571	518		
Turnip-cabbage (ooo centals)	3,868	3,023	2,139	128.0	180.9
(ooo sh. tons)	193	151	107		

Sweden : Production of the principal fodder crops in 1932 compared with 1931 and the five-year average is as follows :

	1932	1931	Average 1926-1930	% 1931 = 100	% 1932 Average = 100
Permanent mead- ows (hay) (ooo centals)	14,529	14,506	13,056	100.2	111.3
ows (hay) (ooo bushels)	726	725	653		
Temporary mead- ows (hay) (ooo centals)	109,261	117,573	108,443	92.9	100.8
ows (hay) (ooo bushels)	5,463	5,879	5,422		
Fodder roots and tubers in general (ooo sh. tons)	79,146	70,107	70,558	112.9	112.2
	3,957	3,505	3,528		

Canada : The latest estimates of area and production of alfalfa, fodder maize and turnips, etc. in 1932 together with relevant comparisons are as follows :

	1932 (ooo acres)	1931	Average 1926-1930	% 1931 = 100	% 1932 Average = 100
Alfalfa	664	557	829	119.1	80.1
Fodder maize	361	339	453	106.4	79.8
Turnips, etc.	168	151	206	111.3	81.6

(Production in thousands)

Alfalfa (centals)	38,180	26,840	38,812	142.3	98.4
(short tons)	1,909	1,342	1,941		
Fodder maize (centals)	56,240	57,298	74,007	98.2	76.0
(short tons)	2,812	2,865	3,700		
Turnips, etc. (centals)	32,973	29,371	38,480	112.3	85.7
(short tons)	1,649	1,469	1,924		

The estimates of acreage show considerable increases compared with those made in September ; as regards production the above are the first estimates made for fodder maize and turnips.

United States : In the last week of September pastures were seriously dried and in very poor condition in the Middle Atlantic States and sections to the northward. Rain fell in some areas but more was needed in the western Lake region, the northern Great Plains, the Southwest and the Pacific Northwest.

The October estimates of hay production show only slight differences compared with those made in September, the largest change being an increase of roughly 1 ½ % in the estimate for timothy and clover. The reductions made for alfalfa and tame hay are below ½ %.

Egypt : Germination and growth of *bersim* (clover) are satisfactory.

Union of South Africa : The severe drought continued during August, except in the Cape south-western districts and the coastal belt. General and soaking rains were urgently needed throughout the inland areas of the Union to replenish dams and bring on pastures. Even in those areas where the pastures were relatively well furnished with vegetation some anxiety was being felt as to the future.

LIVESTOCK AND DERIVATIVES

Number of pigs in Germany on 1 September 1932.

The total number of pigs on 1 September this year was lower than that on the same date last year but higher than on 1 September 1930 and considerably higher than on 1 September 1929. As usual for the season the September enumeration shows an increase over the total for the preceding June; this increase from June to September was in 1930 considerably greater while in 1931, when the total number of pigs attained its last maximum, it was rather smaller.

Comparing the numbers of pigs over six months old at the beginning of September 1932 available for meat with the corresponding number at the beginning of September 1931 a small increase of 2 % is apparent, especially in young animals; on the other hand the number of pigs from eight weeks to six months old shows a decrease of 5.8 %, and that of sucking pigs under eight weeks old one of 7.0 % since the beginning of September 1931.

Sows in farrow on 1 September 1932 were fewer than a year previously; the seasonal diminution in the number of sows in farrow in the quarter from the beginning of June to the beginning of September is, however, rather smaller than in 1931.

Numbers of pigs in Germany (1).

CLASSIFICATION BY SEX AND AGE	1 Sept. 1932	1 June 1932	1 March 1932	1 Dec. 1931	1 Sept. 1931	1 June 1931	2 March 1931	1 Dec. 1930	1 Sept. 1930	2 June 1930	1 March 1930	2 Dec. 1929	2 Sept. 1929
(1000 head).													
Totals	24,175	21,289	20,633	23,783	25,348	22,529	21,790	23,442	23,423	19,805	18,649	19,944	19,604
Sucking pigs under 8 weeks of age	6,326	5,501	5,013	5,125	6,804	6,027	5,750	5,469	6,522	5,091	5,012	4,417	5,373
Young pigs from 8 weeks to 6 months of age . .	10,341	9,832	9,976	10,469	10,980	10,351	10,231	10,035	9,809	9,178	8,555	8,693	8,290
Pigs from 6 months to 1 year of age	5,434	4,109	3,853	5,775	5,391	4,172	3,939	5,484	5,125	3,842	3,487	4,599	4,288
Of which:													
Boars for service. . .	46	46	47	52	51	54	58	61	57	57	54	56	50
Sows for breeding (total)	516	607	549	495	569	693	706	674	812	876	722	663	652
Sows covered	(255)	(374)	(323)	(251)	(276)	(409)	(425)	(369)	(442)	(574)	(455)	(383)	(363)
Other swine	4,872	3,456	3,257	5,228	4,771	3,425	3,176	4,749	4,256	2,909	2,712	3,880	3,585
Pigs 1 year old and over .	2,074	1,847	1,791	2,414	2,173	1,979	1,870	2,455	1,967	1,694	1,695	2,235	1,653
Of which:													
Boars for service. . .	75	73	67	63	73	71	62	60	61	57	51	50	58
Sows for breeding (total)	1,559	1,534	1,425	1,458	1,661	1,663	1,517	1,503	1,467	1,356	1,229	1,179	1,208
Sows covered	(832)	(938)	(875)	(869)	(902)	(1,021)	(927)	(942)	(861)	(915)	(792)	(775)	(737)
Other swine	440	240	299	893	439	246	291	892	440	280	315	1,006	387

1) Present territory, excluding the Saar.

Livestock in Norway.

In the following table are given the numbers of livestock in Norway during the last ten years.

Year	Horses	Cattle	Sheep	Goats	Pigs
20 June 1932	179,068	1,341,787	1,735,932	342,525	303,966
20 » 1931	176,823	1,309,656	1,692,406	344,352	317,343
20 » 1930	176,898	1,250,672	1,588,186	333,141	338,859
20 » 1929	177,169	1,224,182	1,533,015	323,677	289,039
20 » 1928	182,401	1,220,875	1,654,448	293,258	282,709
20 » 1927	183,365	1,209,450	1,608,222	290,099	299,669
20 » 1926	183,342	1,200,279	1,595,237	290,279	303,412
20 » 1925	183,887	1,150,617	1,528,819	275,783	252,959
20 » 1924	185,935	1,114,433	1,506,850	258,767	249,022
20 » 1923	193,157	1,131,120	1,525,281	241,753	237,302

It may be noticed from the table that the number of horses, which had constantly decreased since 1923, largely due to the mechanisation of agriculture, shows a slight recovery (+1.3 %) but still remains 7.3 % below the figure for 1923.

The number of cattle continues its uninterrupted upward tendency with an increase of 2.5 % on 1931 and now exceeds the figure for 1923 by 18.6 %.

Sheep have fluctuated in numbers with a tendency to increase and the number is now 2.6 % above that of last year and 13.8 % above the figure for 1923.

For goats, despite a very slight decrease in 1932 (—0.5 %) there has been a steady increase in recent years and the number now exceeds that of 1923 by 41.7 %.

The number of pigs has fluctuated fairly widely; after reaching a record figure in 1930 it decreased in the next two years by 6.3 % from 1930 to 1931 and by 4.2 % from 1931 to 1932, but the number in 1932 still remains 28.1 % above that of 1923.

Poultry in England and Wales.

The figures in the following table, compiled from the returns furnished as on June 4th 1932 by occupiers of agricultural holdings exceeding one acre in extent, reveal an increase in each class of poultry.

The principal feature of the poultry statistics for 1932, is the continuation of the increase noted in the number of fowls since the war; the number of ducks has continued to increase since 1929 and the tendency to decline in recent years of the numbers of geese and turkeys has this year been checked.

The increase in the total number of fowls from 1931 to 1932 was 9.8 % (over 5 million head) ; young birds under six months increased by 3,117,000 head (10.5 %) and those over 6 months, by 2,053,000 head (8.7 %). The increases were practically general throughout the country.

Year	Fowls under 6 months old on 4th June	Fowls over 6 months old on 4th June	Total Fowls	Ducks	Geese	Tur- keys
Thousand head						
1932	32,123	25,611	57,734	2,632	573	553
1931	29,006	23,558	52,564	2,494	551	529
1930	26,460	21,441	47,901	2,383	604	667
1929	22,424	20,333	42,757	2,243	616	696
1928	20,344	19,572	39,916	2,507	620	593
1927	21,172	18,319	39,491	2,797	653	604
1921	13,114	11,702	24,816	2,391	517	445
1913	15,291	13,735	29,026	2,188	577	652

The total number of ducks was 6 % larger (+138,000 head) than in 1931. The increase was chiefly due to an addition of 14 % to the number of ducks over six months old, their number in 1932 being 1,021,000 head. In the case of young ducks nearly half the countries returned smaller numbers than in 1931, Norfolk reporting a decrease of 41,000 head (17 %) ; in Suffolk, on the contrary there was an increase of 17,000 head (20 %). These variations in the numbers of young ducks result, for the whole of the country, in a comparatively small increase of 16,000 head (1 %), most of which occurred in Wales, especially in Glamorgan. The total number of young ducks on June 4, 1932 was 1,611,000 head.

The recovery compared with 1931 in the number of geese (+22,000 head or 4 %) was fairly general in England, increases of 5,000 head (8 %) in Yorkshire and 3,500 (34 %) in Norfolk, being worthy of mention, while in the Wales the number of geese remained stationary at 137,000.

The increase in 1932 of 25,000 head (6 %) on the number of turkeys is due to an increase in England, Wales reporting a small decrease. The improvement in England was most marked in the Southwest, particularly in Devonshire (+14 %), Somerset (+27 %), Cornwall (+18 %) and Dorset (25 %), the total increase for these four counties being 13,000 head. Other interesting changes are to be seen in Norfolk (+6 %) and Suffolk (—7 %).

Condition of livestock and dairy production.

Belgium : Livestock are in good health ; the economic situation as regards rearing is also good.

Irish Free State : Feed supplies should prove ample to meet normal requirements. Milk yields in September showed the normal seasonal decline.

Great Britain and Northern Ireland : In England and Wales milk yields showed some tendency to fall but are about normal for the time of the year.

In Scotland wheat milling offals and the by-products of breweries and distilleries are very scarce but most classes of feeding stuffs are ample for requirements. Home-grown and imported grain is plentiful and cheap. The milk yield shows a distinct reduction but is normal for the season.

In Northern Ireland the condition and health of store cattle, generally, continued to be satisfactory in September. In a number of districts, however, hoose was prevalent and affected adversely a number of cattle, particularly younger animals. Dairy stock have also thriven well; the milk yield during September was well maintained but towards the end of the month the supply declined and is now about average for the season.

All classes of sheep have benefited by the plentiful supply of pasture available and, with the exception of a few areas where fluke occurred, are in good health and condition.

Argentina : Livestock are in generally satisfactory health.

Union of South Africa : The severe drought during August caused serious losses of stock in many areas. Stock are still in fair to good condition and dry feed plentiful in Natal, Bechuanaland and the highveld areas of the Transveld and the winter lambing crop has been successful. On the whole, however, conditions have been unfavourable for the rearing of lambs, which in some cases have been destroyed to save the ewes. The poor market for mohair has also restricted expansion and both economic and unfavourable pastoral conditions will rigorously limit the number of kids raised.

TRADE

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Wheat. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	168	238	0	0	5,688	3,234	0	0	—	—
Hungary	395	655	0	0	7,912	5,247	0	2	—	—
Lithuania . . . . .	...	...	...	...	20	545	0	0	—	—
Poland . . . . .	... 7	... 55	... 0	... 2	1,598	1,847	346	49	—	—
Rumania	42	3,953	0	0	21,202	9,054	7	9	—	—
U. S. S. R. . . . .	...	...	—	—	37,426	50,067	—	—	—	—
Yugoslavia	126	2,608	0	0	8,796	3,247	0	0	—	—
Canada	10,975	7,145	7	9	109,685	137,150	75	79	—	—
United States	2,560	5,346	298	809	52,805	46,306	7,361	11,616	—	—
Argentina	2,240	3,783	—	—	81,435	71,851	—	—	—	—
Chile . . . . .	...	...	...	...	9	428	0	0	—	—
Turkey	2	9	0	0	913	265	0	7	—	—
Algeria	1,369	397	62	179	4,837	6,810	1,462	1,371	—	—
Tunis	721	752	20	29	5,337	3,704	401	542	—	—
Australia	1,318	3,611	0	0	73,793	76,505	0	0	—	—
<i>Importing Countries:</i>										
Germany	888	31	2,172	1,049	7,313	265	21,006	18,805	—	—
Austria	0	0	348	379	0	86	6,418	5,315	—	—
Belgium	216	487	1,964	2,760	3,587	2,079	31,478	31,184	—	—
Denmark	0	0	869	397	9	46	8,719	4,874	—	—
Spain	0	0	503	0	0	4	3,049	0	—	—
Estonia	0	0	0	37	0	0	256	370	—	—
Irish Free State	0	0	518	699	13	18	6,369	6,435	—	—
Finland	0	0	77	11	0	0	428	90	—	—
France	0	2	5,710	5,706	9	966	53,138	46,597	—	—
Gr. Brit. and N. Irel.	46	68	10,320	13,179	1,206	683	137,664	124,551	—	—
Greece	0	0	1,016	1,058	0	0	14,116	14,233	—	—
Italy	0	0	679	595	18	22	22,567	50,116	—	—
Latvia	0	0	11	44	0	0	575	1,030	—	—
Norway	0	0	143	123	0	0	3,294	3,126	—	—
Netherlands	4	7	1,270	935	110	683	16,817	16,568	—	—
Portugal	—	—	128	289	—	—	1,393	1,316	—	—
Sweden	0	0	509	201	9	31	4,054	2,855	—	—
Switzerland	4	0	1,093	1,034	18	2	12,683	11,096	—	—
Czechoslovakia	0	0	225	968	4	4	13,199	7,079	—	—
India	2	90	0	179	183	2,251	179	6,687	—	—
Japan	—	—	401	734	—	—	17,070	15,311	—	—
Syria and Lebanon . . . . .	...	...	...	...	511	137	328	44	—	—
Egypt . . . . .	...	...	...	...	2	2	994	1,019	—	—
Union of South Africa . . . . .	...	...	...	...	0	0	1,508	—	—	—
New Zealand . . . . .	...	...	...	...	0	0	238	128	—	—
Totals	21,083	29,237	28,343	31,405	424,450	423,539	386,703	384,012	—	—
Rye. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Germany	428	22	1,332	75	2,046	1,213	12,103	690	—	—
Bulgaria	9	101	0	0	990	1,413	0	0	—	—
Hungary	110	115	0	0	1,486	1,579	0	0	—	—
Lithuania . . . . .	...	...	...	...	9	163	2	0	—	—
Poland	421	161	0	0	2,513	5,880	123	2	—	—
Rumania	7	234	0	0	1,676	1,299	0	0	—	—
U. S. S. R. . . . .	...	...	—	—	17,910	9,262	—	—	—	—
Canada	668	82	0	0	5,066	1,171	0	0	—	—
United States	0	4	—	—	622	90	—	—	—	—
Argentina	68	62	—	—	4,766	992	—	—	—	—
Turkey	26	44	0	0	690	368	0	0	—	—
Algeria	7	4	0	0	31	35	0	0	—	—
<i>Importing Countries:</i>										
Austria	0	0	75	86	0	9	1,728	2,205	—	—
Belgium	66	13	218	220	639	126	2,709	3,739	—	—
Denmark	0	0	721	465	0	4	4,731	7,103	—	—
Estonia	0	0	0	4	0	0	13	194	—	—
Finland	0	0	143	73	0	2	1,202	1,570	—	—
France	0	0	1,1	53	0	0	1,737	1,378	—	—
Italy	0	0	13	7	0	0	157	597	—	—
Latvia	0	0	0	13	0	0	99	265	—	—
Norway	—	—	49	300	—	—	3,415	3,023	—	—
Netherlands	7	49	516	399	331	791	4,405	6,180	—	—
Sweden	0	0	218	35	26	4	1,345	520	—	—
Switzerland	0	0	26	11	0	0	108	174	—	—
Czechoslovakia	2	0	64	278	7	476	5,124	844	—	—
Totals	1,819	891	3,496	2,019	38,808	24,877	39,001	28,484	—	—

1) 2) See notes page 717.

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Wheat flour. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Germany	0	2	7	22	64	128	229	238	—	—
Belgium	4	4	13	11	73	216	51	231	—	—
Bulgaria	13	24	0	0	752	220	0	0	—	—
Spain	0	2	0	0	18	75	0	0	—	—
France	119	855	46	40	4,533	7,423	262	569	—	—
Hungary	64	95	0	0	2,130	4,008	0	0	—	—
Italy	485	128	18	18	2,218	1,191	287	223	—	—
Latvia	0	0	0	0	0	73	0	2	—	—
Lithuania	—	—	—	—	26	24	0	0	—	—
Poland	15	24	0	0	511	615	4	24	—	—
Rumania	2	110	0	0	855	421	0	0	—	—
Yugoslavia	4	0	0	0	104	88	0	0	—	—
Canada	648	1,023	2	2	10,551	13,113	40	49	—	—
United States	1,254	1,254	0	0	15,091	23,100	0	2	—	—
Argentina	62	172	—	—	1,545	2,057	—	—	—	—
Chile	—	—	—	—	29	104	0	0	—	—
India	42	68	0	0	836	1,032	0	2	—	—
Turkey	0	0	0	0	11	29	4	11	—	—
Japan	320	245	0	11	3,470	3,472	106	212	—	—
Algeria	40	15	2	2	157	267	57	57	—	—
Tunis	20	29	0	0	146	251	20	11	—	—
Australia	694	847	0	0	13,995	10,404	0	0	—	—
<i>Importing Countries:</i>										
Austria	0	2	46	15	7	13	1,279	3,100	—	—
Denmark	2	0	75	106	13	24	1,290	1,572	—	—
Estonia	0	0	0	4	11	2	15	88	—	—
Irish Free State	0	4	368	300	26	40	4,045	3,691	—	—
Finland	0	0	117	170	0	0	1,596	2,150	—	—
Gr. Brit. and N. Irel.	489	395	758	904	5,628	4,608	11,224	12,816	—	—
Greece	0	4	0	0	9	0	66	165	—	—
Norway	0	0	68	165	11	2	1,358	1,396	—	—
Netherlands	9	2	64	104	71	115	723	3,845	—	—
Portugal	—	—	9	13	—	—	201	218	—	—
Sweden	0	0	2	2	0	2	37	71	—	—
Czechoslovakia	0	0	49	24	9	11	1,182	2,432	—	—
Ceylon	—	—	33	42	—	—	401	445	—	—
Java and Madura	—	—	—	—	—	—	1,138	1,025	—	—
Indo-China	—	—	—	—	—	—	388	428	—	—
Syria and Lebanon	—	—	—	—	93	22	397	168	—	—
Egypt	—	—	—	—	0	0	2,430	3,560	—	—
Union of South Africa	—	—	—	—	2	2	15	265	—	—
New Zealand	—	—	—	—	4	238	234	—	—	—
Totals	3,846	5,300	1,679	1,964	62,990	73,163	29,083	39,302		
Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	20	66	0	0	406	1,598	0	0	—	—
Spain	0	2	0	0	15	152	0	0	—	—
Hungary	11	2	0	0	55	580	7	4	—	—
Lithuania	—	—	—	—	0	15	0	0	—	—
Poland	101	13	0	0	3,146	2,798	0	0	—	—
Rumania	2,242	3,095	0	0	15,911	33,797	0	4	—	—
Czechoslovakia	130	4	0	0	2,112	3,003	2	4	—	—
U. S. S. R.	—	—	—	—	15,115	17,249	—	—	—	—
Canada	743	1,579	0	0	6,499	9,240	0	0	—	—
United States	456	472	—	—	2,524	4,978	—	—	—	—
Argentina	18	49	—	—	6,274	5,833	—	—	—	—
Chile	—	—	—	—	492	536	0	0	—	—
India	—	—	0	0	666	306	0	2	—	—
Syria and Lebanon	2	2	—	—	384	869	104	7	—	—
Turkey	154	139	0	0	2,996	593	0	0	—	—
Algeria	26	55	351	198	620	1,444	2,520	465	—	—
Egypt	—	—	—	—	2	2	273	152	—	—
Tunis	584	99	7	26	820	220	556	390	—	—
Australia	7	71	0	0	1,614	1,552	0	0	—	—
<i>Importing Countries:</i>										
Germany	0	0	344	582	18	62	14,919	18,440	—	—
Austria	0	0	117	71	0	0	2,050	2,077	—	—
Belgium	139	71	538	531	1,676	1,076	9,396	10,538	—	—
Denmark	4	0	163	734	470	1,232	3,331	15,005	—	—
Estonia	—	—	0	0	—	—	0	13	—	—
Irish Free State	0	0	0	2	26	20	483	454	—	—
France	0	0	622	390	15	22	9,482	7,721	—	—
Gr. Brit. and N. Irel.	7	0	853	1,292	31	68	14,039	18,691	—	—
Greece	0	0	0	0	0	0	172	79	—	—
Italy	0	0	247	15	0	0	800	756	—	—
Latvia	0	0	0	0	0	0	4	212	—	—
Norway	0	0	0	0	0	0	794	1,078	—	—
Netherlands	0	7	547	677	262	591	9,114	14,716	—	—
Switzerland	0	0	159	95	2	0	2,989	2,829	—	—
Yugoslavia	0	4	0	0	13	29	37	130	—	—
Totals	4,644	5,730	3,948	4,615	62,164	87,865	71,072	93,767		

1) 2) See notes page 717.

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-JULY 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Irish Free State . . .	2	0	0	49	73	254	220	452	—	—
Hungary	0	0	0	0	7	13	2	141	—	—
Lithuania . . . . .	...	...	...	...	20	84	0	0	—	—
Poland	2	2	0	0	62	137	0	0	—	—
Rumania	46	9	0	0	295	1,779	0	0	—	—
Czechoslovakia . . .	104	18	0	44	884	710	57	143	—	—
Yugoslavia	0	0	0	0	2	2	0	86	—	—
Canada	271	256	108	57	4,628	2,659	655	234	—	—
United States	357	71	0	0	891	130	22	205	—	—
Argentina	683	736	—	0	16,250	15,062	—	—	—	—
Chile . . . . .	...	...	...	...	223	2,178	0	0	—	—
Algeria	13	0	9	68	273	1,292	384	181	—	—
Tunis	33	55	0	0	212	545	0	9	—	—
Australia	18	7	0	0	108	73	2	2	—	—
<i>Importing Countries:</i>										
Germany	0	0	4	97	9	220	223	1,003	—	—
Austria	0	0	71	90	0	2	1,462	2,227	—	—
Belgium	2	0	71	212	37	4	1,501	3,494	—	—
Denmark	0	4	9	106	66	20	474	1,270	—	—
Estonia	0	0	0	0	0	0	7	159	—	—
Finland	0	0	9	13	20	7	55	260	—	—
France	0	0	320	161	7	20	3,214	2,205	—	—
Gr. Brit. and N. Irel.	0	4	600	827	203	397	8,494	10,697	—	—
Italy	0	0	64	148	0	0	4,072	3,741	—	—
Latvia	0	0	0	0	0	4	7	60	—	—
Norway	0	0	7	40	2	4	273	4	—	—
Netherlands	0	4	165	86	44	375	2,381	3,607	—	—
Sweden	7	0	86	223	181	40	1,157	1,334	—	—
Switzerland	0	0	258	390	2	2	5,033	4,564	—	—
Totals	1,558	1,166	1,781	2,611	24,499	26,013	29,695	36,078	—	—
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>					TEN MONTHS (November 1-August 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
Bulgaria	90	31	0	0	2,524	3,318	0	0	3,477	0
Rumania	1,980	1,567	0	0	30,481	16,632	2	2	18,638	2
Yugoslavia	0	106	0	0	1,550	6,363	26	9	6,420	24
United States	366	88	9	11	1,896	1,146	198	509	1,314	520
Argentina	14,132	20,660	—	—	154,591	151,817	—	—	199,107	—
Brazil . . . . .	...	...	—	—	0	18	—	—	18	—
Java and Madura . . .	...	...	—	—	2,224	2,105	—	—	2,407	—
Indo-China . . . . .	...	...	—	—	1,731	1,711	—	—	2,584	—
Syria and Lebanon . .	...	...	...	...	7	150	33	49	159	49
Turkey	15	42	0	0	328	146	0	0	212	0
Egypt . . . . .	...	...	...	...	9	4	40	101	4	298
Union of South Africa .	525	174	0	0	2,427	1,208	0	0	3,298	0
<i>Importing Countries:</i>										
Germany	0	0	1,310	1,217	0	0	14,989	7,906	0	10,007
Austria	0	0	432	805	0	2	6,594	4,817	2	6,270
Belgium	42	40	1,883	1,958	121	703	16,023	13,523	955	17,075
Denmark	0	0	1,920	2,538	0	0	19,637	10,646	0	13,539
Spain	0	0	293	317	0	0	6,347	3,067	0	3,666
Irish Free State . . .	0	0	1,248	1,290	0	26	11,383	9,376	26	12,044
Finland	0	0	115	46	0	0	450	218	0	355
France	2	0	3,181	2,352	26	37	20,739	17,452	40	23,755
Gr. Brit. and N. Irel.	322	220	5,908	5,838	2,734	1,964	52,468	41,291	2,407	53,281
Greece	0	0	22	31	0	0	3,360	351	0	373
Hungary	0	0	220	143	62	236	873	2,127	240	2,337
Italy	0	0	1,435	2,584	4	7	14,917	13,728	7	17,505
Norway	0	0	604	474	0	0	3,519	3,109	0	3,977
Netherlands	11	20	2,923	3,300	198	251	31,665	25,437	273	32,441
Poland	0	0	13	26	0	0	108	445	0	496
Portugal	—	—	126	150	—	—	1,100	1,334	—	1,605
Sweden	0	0	736	1,027	0	0	5,329	5,587	0	7,311
Switzerland	0	0	430	406	2	2	2,943	2,560	2	3,611
Czechoslovakia . . .	0	0	588	1,662	0	0	9,493	10,371	2	13,115
Canada	4	0	154	450	13	7	3,283	3,657	9	4,760
Japan	—	—	0	99	—	—	1,693	1,440	—	1,689
Tunis	0	0	0	2	0	9	324	269	9	298
Totals	17,489	22,948	23,350	26,726	200,928	187,862	227,536	179,381	241,610	230,403

3) See notes page 717.

COUNTRIES	AUGUST				EIGHT MONTHS (January 1-August 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	44	40	0	0	551	476	0	0	833	0
Italy	137	395	9	2	2,224	2,220	40	35	3,325	55
United States	132	110	2	4	1,927	1,773	130	258	2,771	328
Brazil . . . . .	...	...	—	—	520	1,296	—	—	1,993	—
India	2,842	3,342	26	130	37,997	36,121	448	434	48,442	692
Indo-China . . . . .	...	...	—	—	16,751	13,995	—	—	21,153	—
Siam	3,082	1,964	—	—	22,448	17,002	—	—	25,029	—
Egypt . . . . .	...	...	...	...	168	503	708	190	686	833
<i>Importing Countries:</i>										
Germany	115	119	708	1,089	750	849	6,227	5,681	1,373	8,962
Austria	0	0	55	51	0	0	379	412	0	756
Belgium	20	15	108	170	157	115	818	933	190	1,349
Denmark	0	0	13	9	0	0	75	97	0	157
Estonia	—	—	0	4	—	—	11	22	—	33
Irish Free State	0	0	2	2	0	0	37	40	0	53
France	60	88	787	531	545	626	5,326	3,768	937	6,792
Gr. Brit. and N. Irel.	9	15	174	154	130	150	1,753	1,733	271	2,690
Greece	—	—	31	44	—	—	353	373	—	540
Hungary	0	0	26	22	0	0	262	326	0	481
Latvia	0	0	2	4	0	0	11	15	0	82
Lithuania . . . . .	...	...	...	...	0	0	9	15	0	22
Norway	0	0	7	13	0	0	51	93	0	117
Netherlands	137	194	55	353	1,107	1,761	1,838	4,142	2,480	5,009
Poland	22	31	231	170	236	214	1,025	1,142	606	1,726
Portugal	—	—	33	64	—	—	621	414	—	613
Sweden	—	—	0	0	—	—	90	123	—	123
Switzerland	0	0	22	26	0	0	249	260	0	454
Czechoslovakia	0	0	112	117	0	0	736	717	0	1,127
Yugoslavia	0	0	51	49	2	2	320	529	4	511
Canada	0	0	15	13	9	0	498	558	0	710
Chile . . . . .	—	—	...	...	—	—	146	373	—	441
Ceylon	0	0	1,008	935	2	15	7,416	6,923	18	10,196
Java and Madura . . . . .	...	...	...	...	24	123	2,183	3,814	232	6,323
Japan	9	620	249	249	628	3,662	2,044	1,792	4,195	2,773
Syria and Lebanon . . . . .	...	...	...	...	0	0	205	181	0	322
Turkey	0	0	7	20	0	0	60	117	0	183
Algeria	0	0	7	13	9	2	139	90	2	179
Tunis	0	0	0	2	0	0	29	22	0	31
Union of South Africa . . . . .	...	...	...	...	2	2	425	589	0	1,025
Australia	7	9	0	2	62	95	33	20	161	29
New Zealand . . . . .	...	...	...	...	9	0	42	51	0	73
Totals	6,616	6,942	3,740	4,242	86,247	81,000	33,724	36,331	114,703	55,790
Linseed. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Estonia	0	0	0	0	2	4	0	0	4	0
Lithuania . . . . .	...	...	...	...	101	128	0	0	247	7
Argentina	3,298	3,280	—	—	29,630	30,126	—	—	41,742	—
India	112	194	0	0	1,124	1,678	0	0	2,515	0
Tunis	11	0	0	0	20	4	0	0	4	0
<i>Importing Countries:</i>										
Germany	2	0	1,008	474	11	9	6,279	5,564	13	7,507
Belgium	2	7	280	267	117	71	2,275	2,599	205	3,702
Denmark	—	—	64	51	—	—	348	324	—	417
Spain	—	—	35	18	—	—	366	300	—	465
Finland	0	0	4	2	0	0	33	46	0	68
France	0	0	463	575	4	13	3,349	3,752	18	5,814
Gr. Brit. and N. Irel.	2	0	955	414	2	4	5,583	5,132	4	7,599
Greece	0	0	4	9	0	0	44	57	0	95
Hungary	2	11	0	0	9	22	0	0	42	2
Italy	0	0	82	154	0	0	904	930	0	1,351
Latvia	0	2	4	11	20	55	40	66	106	90
Norway	0	0	55	0	0	0	249	234	0	289
Netherlands	2	2	858	498	71	44	6,451	6,532	49	9,255
Poland	0	0	24	9	2	4	132	265	7	273
Sweden	—	—	79	79	—	—	730	820	—	1,056
Czechoslovakia	0	0	62	51	2	2	434	370	7	582
Yugoslavia	0	0	11	7	0	0	71	108	0	126
Canada	0	35	0	15	2	483	256	15	584	194
United States	—	—	11	750	—	—	3,126	5,104	—	8,109
Japan	—	—	2	15	—	—	110	141	—	185
Australia	0	0	141	15	0	0	388	249	0	291
Totals	3,431	3,531	4,140	3,414	31,117	32,647	31,174	32,610	45,547	47,470

COUNTRIES	AUGUST				EIGHT MONTHS (January 1-August 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Butter. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Austria	115	251	33	55	487	1,433	780	1,512	2,862	1,565
Denmark	27,307	30,428	0	150	241,786	257,353	884	1,168	378,429	1,596
Estonia	3,183	4,063	0	0	19,147	21,175	0	0	31,844	0
Irish Free State . .	4,467	7,745	11	20	23,462	29,161	2,597	3,195	42,307	3,325
Finland	2,595	2,467	0	0	23,532	28,290	0	0	38,367	0
Hungary	2,437	459	0	0	2,544	1,268	0	117	4,065	117
Latvia	4,971	4,321	0	0	27,331	27,719	0	20	41,313	24
Lithuania . . . . .	...	...	...	...	11,799	10,875	3)	0	19,191	0
Netherlands	3,166	6,563	198	794	24,174	52,688	8,722	4,321	72,660	8,887
Poland	71	3,058	243	2	2,608	19,815	417	26	27,470	31
Sweden	2,520	3,183	4	2	20,494	30,902	22	9	43,162	40
U. S. S. R. . . . .	...	...	—	—	...	...	—	—	68,024	—
Argentina	2,721	840	—	—	36,824	26,931	—	—	51,132	—
India	11	26	15	22	159	225	269	223	366	344
Syria and Lebanon .	...	...	...	...	174	1,080	3)	185	1,817	344
Australia	10,812	9,264	0	0	126,614	111,889	0	0	208,924	0
New Zealand	17,657	8,931	—	—	145,080	137,298	—	—	220,814	—
<i>Importing Countries:</i>										
Germany	9	49	11,557	18,821	159	214	98,060	141,348	269	220,950
Belgium	181	251	2,394	3,142	1,634	1,799	33,731	25,863	2,756	41,562
Spain	9	2	0	2	33	66	26	42	88	121
France	723	970	146	2,194	5,077	6,475	15,468	32,979	11,028	40,836
Gr. Brit. and N. Irel.	1,025	1,446	77,603	73,699	31,196	24,469	634,940	610,685	40,228	903,967
Greece	—	—	55	187	—	829	—	1,168	—	2,066
Italy	26	44	40	108	697	1,144	3,344	4,682	1,268	6,016
Norway	57	71	4	40	1,898	1,288	73	212	1,629	379
Switzerland	0	2	15	1,418	4	7	6,900	15,130	20	23,358
Czechoslovakia . .	0	2	75	611	26	304	2,130	3,241	661	4,107
Canada	721	1,709	0	2	3,093	6,219	185	2,815	10,681	2,822
United States . . .	258	159	44	62	1,182	1,530	772	880	2,008	1,881
Ceylon	—	—	29	42	—	—	406	401	—	642
Java and Madura .	—	—	...	...	—	—	5,218	5,075	—	8,514
Japan	—	—	4	7	—	—	101	152	—	231
Algeria	2	4	49	311	26	46	2,509	2,754	73	4,389
Egypt . . . . .	...	...	...	...	342	24	481	1,393	77	2,041
Tunis	0	4	73	49	2	4	769	939	9	930
Totals	83,044	86,312	92,592	101,740	751,604	803,691	820,854	860,115	1,323,542	1,281,085
Cheese. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Denmark	959	844	2	55	8,391	6,109	97	410	9,383	604
Finland	558	441	0	0	4,599	4,101	11	15	5,776	33
Italy	4,702	6,230	668	922	40,453	55,230	5,509	6,779	89,043	10,115
Lithuania . . . . .	...	...	...	...	955	1,329	3)	2	7,546	11
Norway	229	293	11	26	2,158	1,486	143	357	2,840	562
Netherlands	16,149	17,011	86	119	111,689	127,860	686	829	190,460	1,345
Poland	33	205	35	46	558	1,907	368	511	2,884	761
Switzerland	3,461	4,892	375	683	27,428	38,592	3,285	4,195	54,307	8,470
Czechoslovakia . .	384	617	260	635	4,257	5,229	1,956	2,628	10,981	3,779
Yugoslavia	276	498	7	13	1,263	2,399	106	161	4,198	243
Canada	16,713	11,929	53	68	41,784	31,240	664	886	84,790	1,446
Australia	478	443	0	2	3,710	3,900	11	18	7,405	24
New Zealand	12,284	5,983	0	2	124,703	125,338	0	4	181,703	4
<i>Importing Countries:</i>										
Germany	295	650	10,338	9,577	2,542	4,235	68,685	79,755	7,372	120,404
Austria	514	549	181	459	2,127	4,004	2,745	4,279	6,232	5,781
Belgium	37	71	4,502	4,742	372	540	29,575	32,503	814	49,600
Spain	15	20	249	183	187	137	1,371	2,266	236	3,867
Irish Free State . .	2	20	198	198	29	77	1,442	1,625	194	2,687
France	1,605	2,037	4,881	7,110	18,484	21,449	32,999	52,922	33,239	82,810
Gr. Brit. and N. Irel.	646	558	27,829	22,919	4,713	4,804	223,829	212,683	7,346	323,091
Greece	18	2	40	229	110	117	1,248	2,247	190	3,960
Hungary	2	4	0	7	29	82	11	172	110	203
Portugal	—	—	57	108	—	—	306	456	—	842
Sweden	—	—	82	90	—	—	564	935	—	1,691
United States . . .	106	126	4,383	4,389	1,052	1,241	33,211	38,045	1,863	61,992
India	0	0	73	62	2	2	549	540	7	886
Java and Madura .	—	—	...	...	—	—	869	882	—	1,658
Syria and Lebanon .	...	...	...	...	22	73	509	388	86	708
Algeria	7	7	1,067	511	104	119	6,067	5,240	172	11,182
Egypt . . . . .	...	...	...	...	134	37	2,549	4,270	73	7,304
Tunis	0	0	104	123	7	22	1,268	1,215	24	2,033
Totals	59,473	53,430	55,481	53,355	401,859	441,709	420,635	457,223	704,274	708,096

3) See notes page 717.

COUNTRIES	AUGUST				TWELVE MONTHS (August 1-July 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1931-32	1930-31	1931-32	1930-31	1930-31	1930-31

Cotton. — Thousand centals (1 cental = 100 lb.).

<i>Exporting Countries:</i>										
United States . . .	2,471	1,149	35	35	46,787	36,392	620	538	—	—
Argentina . . .	110	88	—	—	589	505	—	—	—	—
Brazil . . .	—	—	—	—	183	516	—	—	—	—
India . . .	333	1,041	37	79	7,088	14,881	2,249	1,876	—	—
Egypt . . .	395	705	0	0	7,500	6,669	0	0	—	—
<i>Importing Countries:</i>										
Germany . . .	137	152	439	425	1,640	1,706	8,327	8,442	—	—
Austria . . .	0	0	24	33	0	0	551	467	—	—
Belgium . . .	22	37	84	121	348	201	1,349	1,713	—	—
Denmark . . .	—	—	4	4	—	—	139	141	—	—
Spain . . .	2	2	159	55	24	24	2,337	2,253	—	—
Estonia . . .	0	0	7	0	0	0	75	84	—	—
Finland . . .	0	0	9	20	0	0	159	172	—	—
France . . .	26	51	240	187	494	549	4,264	8,137	—	—
Gr. Brit. and N. Irel. . .	40	31	955	622	485	481	12,452	10,959	—	—
Greece . . .	0	0	11	18	0	0	192	220	—	—
Hungary . . .	0	0	26	15	0	0	333	291	—	—
Italy . . .	0	0	243	214	0	2	4,039	3,821	—	—
Latvia . . .	0	0	4	4	0	0	51	62	—	—
Norway . . .	0	0	4	2	0	0	44	46	—	—
Netherlands . . .	0	0	44	75	7	7	860	1,043	—	—
Poland . . .	2	2	108	97	22	24	1,074	1,444	—	—
Portugal . . .	—	—	33	29	—	—	434	333	—	—
Sweden . . .	—	—	24	49	—	—	564	467	—	—
Switzerland . . .	0	0	29	31	4	7	505	608	—	—
Czechoslovakia . . .	9	11	121	143	137	154	2,002	2,368	—	—
Yugoslavia . . .	0	0	24	15	0	0	201	185	—	—
Canada . . .	—	—	62	49	—	—	974	1,025	—	—
Japan . . .	0	0	608	725	1,041	534	16,486	13,741	—	—
Algeria . . .	0	0	0	0	4	24	7	4	—	—
Totals . . .	3,547	3,269	3,334	3,054	66,353	62,676	60,288	60,440	—	—

Wool. — (Thousand lb.).

<i>Exporting Countries:</i>					TWELVE MONTHS (September 1-August 31)				TWELVE MONTHS (Sept. 1-August 31)	
Irish Free State . .	937	1,312	128	68	9,949	7,965	948	752	—	—
Hungary . . .	500	644	93	49	2,344	6,931	1,270	1,612	—	—
Argentina . . . { a)	11,920	6,091	—	—	244,579	299,237	—	—	—	—
{ b)	862	351	—	—	8,098	4,266	—	—	—	—
Chile . . .	—	—	—	—	3) 24,158	3) 28,455	—	—	—	—
India . . .	4,118	5,997	474	470	35,402	41,806	5,020	4,857	—	—
Syria and Lebanon . .	—	—	—	—	3) 3,322	3) 9,198	3) 714	3) 2,932	—	—
Algeria . . .	622	1,272	154	146	6,856	16,835	1,252	1,371	—	—
Egypt . . .	—	—	—	—	3) 1,215	3) 3,325	3) 2	3) 11	—	—
Un. of S. Africa. { a)	5,739	732	0	0	298,044	269,750	0	0	—	—
{ b)	516	163	2	0	5,296	4,830	13	4	—	—
Australia . . . { a)	6,984	11,076	11	11	762,756	749,740	2,008	2,337	—	—
{ b)	4,332	2,458	4	0	58,535	43,925	15	53	—	—
New Zealand. { a)	1,056	1,318	0	0	177,116	172,382	2	0	—	—
{ b)	5,576	4,134	0	0	43,167	44,675	11	0	—	—
<i>Importing Countries:</i>										
Germany . . . { a)	192	1,594	16,912	16,111	9,780	11,305	241,740	329,621	—	—
{ b)	668	1,387	2,965	2,000	9,681	13,153	31,656	30,552	—	—
Austria . . .	0	18	948	309	82	254	11,532	14,251	—	—
Belgium . . . { a)	1,742	1,166	9,449	9,575	18,715	10,711	116,938	138,435	—	—
{ b)	1,819	1,733	337	355	22,465	21,638	3,036	3,918	—	—
Denmark . . .	7	9	335	335	157	93	4,409	3,591	—	—
Spain . . .	243	271	1,184	935	2,566	3,946	10,483	10,481	—	—
Finland . . .	0	11	251	90	86	64	2,762	2,328	—	—
France . . .	3,214	3,190	20,058	23,338	45,631	51,522	393,099	482,693	—	—
Gr. Brit. and N. Irel. . .	24,456	16,773	30,629	19,522	315,628	309,823	888,010	821,498	—	—
Greece . . .	132	79	97	260	300	395	2,094	3,025	—	—
Italy . . . { a)	40	157	6,711	5,121	1,232	2,161	145,076	95,622	—	—
{ b)	174	624	946	1,144	1,620	5,051	14,290	9,599	—	—
Norway . . .	51	93	187	84	756	725	2,355	1,607	—	—
Netherlands . . { a)	179	192	827	320	1,933	2,394	7,229	8,770	—	—
{ b)	68	35	884	787	739	388	8,148	7,134	—	—
Poland . . .	82	205	2,090	2,154	1,647	2,610	27,084	38,253	—	—
Sweden . . .	—	—	915	1,563	—	—	17,745	15,461	—	—
Switzerland . . .	11	42	1,530	939	397	366	20,150	18,922	—	—
Czechoslovakia . .	49	163	1,257	2,619	1,892	1,590	32,038	36,952	—	—
Yugoslavia . . .	13	0	331	152	24	24	2,937	7,963	—	—
Canada . . .	705	677	484	847	5,159	2,271	6,277	12,017	—	—
United States . . .	650	309	692	968	3,997	2,227	82,777	153,220	—	—
Japan . . .	0	0	93	112	77	13	1,929	1,422	—	—
Tunis . . .	13	24	73	40	172	463	465	800	—	—
Totals . . .	77,670	64,300	100,957	90,603	2,125,701	2,146,105	2,085,514	2,263,064	—	—

a) = Wool, greasy; b) = Wool, scoured. — 3) See notes page 717.

COUNTRIES	AUGUST		TWO MONTHS (July 1-August 31)		TWELVE MONTHS (July 1- June 30)	COUNTRIES	AUGUST		TWO MONTHS (July 1-August 31)		TWELVE MONTHS (July 1- June 30)	
	1932	1931	1932	1931	1931-32		1932	1931	1932	1931	1931-32	
Coffee. — (Thousand lb.).						Tea. — (Thousand lb.).						
EXPORTS.						EXPORTS.						
Exporting Countries:						Exporting Countries:						
Brazil . . . . .	...	...	56,218	3	157,278	2,022,263	Ceylon	20,589	16,369	40,184	37,139	245,982
India	4	13	49		119	17,926	India	43,184	38,768	77,482	68,928	342,946
Java and Madura .	...	...	9,722	3	5,284	51,725	Java and Madura .	...	...	12,586	13,393	163,312
							Japan	4,698	3,243	7,172	6,052	24,590
Importing Countries:						Importing Countries:						
Germany	143	117	397		496	1,649	Belgium	0	2	2	4	22
Belgium	53	445	137		117	9,643	Irish Free State .	2	15	7	29	258
France	0	2	2		4	15	France	0	4	2	4	57
Netherlands	1,270	818	2,284		1,892	15,265	Gr. Brit. and N. Ire.	9,427	6,352	16,863	13,827	77,887
Portugal	106	97	227		112	1,270	Netherlands	9	18	18	29	139
Switzerland	22	22	49		99	613	United States	20	20	42	44	474
Canada	2	2	7		9	42	Syria and Lebanon .	...	2	3	0	20
United States	1,351	2,187	2,694		3,697	22,814	Algeria . . . . .	...	...	4	4	49
Ceylon . . . . .	...	0	0		2	11	Union of S. Africa .	...	90	...	...	121
Syria and Lebanon .	...	...	3		2	46	Australia	49	90	99	130	549
Australia	0	2	2		9	55	New Zealand . . . .	...	...	7	3	0
Totals	—	—	—	—	2,143,337		Totals	77,980	64,883	154,468	139,583	856,554
IMPORTS.						IMPORTS.						
Importing Countries:						Importing Countries:						
Germany	17,414	23,418	44,110		48,991	307,608	Germany	536	922	1,418	1,530	10,494
Austria	1,759	551	4,180		2,260	16,998	Austria	104	37	256	212	1,131
Belgium	7,811	13,358	16,358		24,650	114,674	Belgium	51	62	79	108	661
Bulgaria	20	82	66		214	1,658	Denmark	64	90	139	190	1,380
Denmark	2,044	4,182	3,982		10,562	66,439	Spain	4	20	44	64	322
Spain	3,202	3,400	6,912		7,277	53,912	Estonia	2	13	4	31	172
Estonia	0	15	2		31	298	Irish Free State .	1,711	1,279	3,314	2,769	25,122
Irish Free State . .	29	22	44		66	522	Finland	15	15	29	35	249
Finland	2,928	2,659	5,401		5,783	32,481	France	203	282	432	467	3,419
France	30,173	38,453	62,173		77,685	426,307	Gr. Britain and N.					
Gr. Britain and N.							Ireland	48,837	49,964	89,510	93,243	550,364
Ireland	3,940	7,767	7,286		6,415	37,516	Greece	60	42	75	71	699
Greece	844	1,140	1,563		2,196	13,010	Hungary	46	42	77	95	562
Hungary	529	648	1,076		1,347	6,041	Italy	9	13	18	26	333
Italy	6,817	7,423	13,622		14,372	93,393	Latvia	15	9	22	20	128
Latvia	20	35	31		57	375	Lithuania . . . . .	...	...	3	7	18
Lithuania . . . . .	...	...	3		29	31	Norway	35	22	64	49	386
Norway	3,190	2,712	5,576		7,053	38,189	Netherlands	2,275	2,515	4,628	5,172	30,836
Netherlands	6,940	9,087	13,170		17,611	103,379	Poland	247	276	518	631	4,317
Poland	1,100	1,131	2,396		2,833	17,185	Portugal	31	49	68	115	648
Portugal	778	620	1,523		1,724	10,657	Sweden	51	60	99	112	858
Sweden	7,471	8,386	14,105		17,549	107,586	Switzerland	119	104	251	256	1,792
Switzerland	2,674	1,836	5,168		5,238	34,286	Czechoslovakia . .	82	139	139	220	1,737
Czechoslovakia . .	1,997	2,441	4,094		4,883	32,386	Yugoslavia	15	37	40	95	622
Yugoslavia	968	1,678	2,105		3,236	17,434	Canada	1,953	1,704	3,327	2,855	39,031
Canada	1,482	2,242	3,803		4,508	31,963	United States	8,005	7,976	14,284	14,555	90,460
United States	79,290	116,737	167,827		262,003	1,628,986	Chile . . . . .	...	...	3	293	877
Chile . . . . .	...	...	3		282	3	Syria and Lebanon .	...	...	3	9	15
Ceylon	258	820	390		1,288	3,572	Turkey	558	148	761	298	1,504
Japan	201	461	278		858	6,724	Algeria	304	185	556	201	10,421
Syria and Lebanon .	...	...	3		163	2,324	Egypt . . . . .	...	...	3	1,775	2,086
Turkey	2,668	884	3,993		1,612	8,841	Tunis	247	2,630	522	4,235	6,669
Algeria	2,948	1,720	5,302		4,531	30,532	Union of S. Africa .	...	...	...	...	12,683
Egypt . . . . .	...	...	3		1,243	15,862	Australia	5,090	4,211	9,167	7,518	44,899
Tunis	234	214	586		401	3,190	New Zealand . . . .	...	...	3	1,052	2,522
Un. of S. Africa . .	...	...	...		...	26,026						
Australia	227	335	366		520	3,510						
New Zealand . . . .	...	...	3		42	452						
Exporting Countries:						Exporting Countries:						
India	0	2	44		24	106	India	866	833	1,175	1,378	6,486
							Java and Madura . .	...	...	3	597	1,041
Totals	189,956	249,459	399,290		540,776	3,304,175	Totals	71,533	73,679	134,749	141,624	880,554

3) See notes page 717.

COUNTRIES	AUGUST		ELEVEN MONTHS (Oct. 1-August 31)		TWELVE MONTHS (Oct. 1-Sept. 30)	COUNTRIES	AUGUST		TWELVE MONTHS (August 1-July 31)		TWELVE MONTHS (August 1-July 31)
	1932	1931	1931-32	1930-31	1930-31		1932	1931	1931-32	1930-31	1930-31
Cacao. — (Thousand lb.).						Total Wheat and Flour *)					
EXPORTS.						(Thousand cents).					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Grenada . . . . .	...	...	3) 8,836	3) 9,418	9,905	Bulgaria	185	271	6,691	3,527	—
Dominican Republ. . . . .	...	...	3) 34,308	3) 48,760	61,328	Spain	4) 2	2	8,115	104	—
Brazil . . . . .	...	...	3) 146,249	3) 111,065	146,478	Hungary	481	780	10,752	10,589	—
Ecuador . . . . .	...	...	3) 34,335	3) 31,312	33,076	Lithuania . . . . .	...	...	55	578	—
Trinidad . . . . .	...	...	3) 35,151	3) 57,770	61,569	Poland	26	86	1,929	2,586	—
Venezuela . . . . .	...	...	3) 27,897	3) 39,793	45,076	Rumania	4,101	...	22,335	9,608	—
Ceylon	271	251	9,083	8,042	8,360	U. S. S. R. . . . .	...	1) 5) 37,426	1) 5) 50,067	3,362	—
Java and Madura . . . . .	...	...	3) 2,277	3) 2,163	3,073	Yugoslavia	132	2,608	8,935	—	—
Cameroon . . . . .	...	...	3) 27,580	3) 25,338	30,126	Canada	11,830	8,497	123,625	154,489	—
Ivory Coast . . . . .	...	...	3) 51,483	3) 42,479	43,363	United States	3,347	6,210	65,566	65,486	—
Gold Coast	13,810	7,214	444,680	473,832	486,374	Argentina	2,321	4,012	83,496	74,594	—
Nigeria . . . . .	...	...	3) 122,006	3) 110,615	115,545	Chile . . . . .	...	...	46	567	—
St. Thomas and Prince Is.	2,584	1,792	25,926	22,774	24,879	India	57	2	1,118	4) 4) 282	—
Togoland . . . . .	...	...	3) 14,991	3) 16,197	16,400	Japan	24	4) 4) 282	5,719	3,481	—
<i>Importing Countries:</i>						Turkey	2	9	922	—	—
Germany	20	0	496	432	454	Algeria	1,358	236	3,508	—	—
Belgium	287	51	1,314	675	809	Tunis	728	761	5,104	90,377	—
France	0	0	4	223	223	Australia	2,244	4,740	92,453	—	—
Netherlands	459	388	5,983	9,716	10,679	Totals	22,779	32,315	463,961	475,416	—
Czechoslovakia	0	0	0	18	18						
United States	198	397	6,418	7,480	8,521						
Australia	0	0	141	66	86						
Totals	17,629	10,093	999,158	1,018,168	1,106,342						
IMPORTS.						b) NET IMPORTS.					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	9,711	8,580	164,798	169,163	180,001	Germany	1,292	1,045	13,913	18,689	—
Austria	1,012	443	12,655	10,066	10,684	Austria	410	397	8,115	9,245	—
Belgium	1,188	1,629	20,953	24,791	25,532	Belgium	1,759	2,282	27,862	29,125	—
Bulgaria	44	22	1,250	758	774	Denmark	966	538	10,412	6,892	—
Denmark	386	423	7,597	7,533	7,685	Spain	503	5) 3,025	5) 3,025	—	—
Spain	600	370	21,127	22,046	22,472	Estonia	0	44	262	485	—
Estonia	7	62	448	441	478	Irish Free State	1,010	1,093	11,715	11,286	—
Irish Free State	84	73	1,065	1,709	1,786	Finland	234	238	2,555	2,956	—
Finland	9	18	154	207	220	France	5,613	4,616	47,435	36,493	—
France	5,778	6,360	84,905	82,541	90,116	Gr. Brit. and N. Irel.	10,633	13,790	143,918	134,811	—
Gr. Brit. and N. Irel.	9,875	7,685	127,957	121,493	141,747	Greece	1,023	1,069	14,204	14,454	—
Greece	51	201	2,661	2,240	2,480	Italy	55	448	19,974	48,804	—
Hungary	542	243	5,203	4,949	5,432	Latvia	11	44	575	935	—
Italy	789	743	13,609	15,289	16,619	Norway	234	344	5,090	4,985	—
Latvia	82	139	1,532	1,596	1,724	Netherlands	1,338	1,063	17,578	20,858	—
Lithuania . . . . .	...	...	498	635	708	Portugal	139	306	1,660	1,607	—
Norway	139	492	4,899	4,127	4,705	Sweden	511	203	4,096	2,915	—
Netherlands	4,564	4,414	85,548	140,089	147,201	Switzerland	6) 1,089	6) 1,034	12,666	11,094	—
Poland	833	721	10,591	11,455	12,313	Czechoslovakia	289	1,001	14,758	10,302	—
Sweden	340	637	10,044	8,483	9,092	Ceylon	44	55	542	597	—
Switzerland	366	461	10,889	23,420	23,803	India	5) 5) 518	5) 518	571	—	—
Czechoslovakia	1,592	1,283	19,568	17,167	18,237	Indo-China . . . . .	...	...	12,584	10,964	—
Yugoslavia	53	163	1,329	1,435	1,473	Java and Madura . . . . .	...	...	1,517	1,367	—
Canada	778	948	15,300	15,080	15,371	Syria and Lebanon . . . . .	...	...	223	101	—
United States	17,895	30,345	374,866	374,620	406,214	Egypt . . . . .	...	...	4,231	5,763	—
Australia	871	807	10,009	6,594	7,308	Union of S. Africa . . . . .	...	2) 1,014	2) 1,845	—	—
New Zealand . . . . .	...	...	3) 1,362	3) 1,340	1,504	New Zealand . . . . .	...	...	569	437	—
Totals	57,589	67,262	1,010,817	1,069,267	1,155,679	Totals	27,153	30,033	381,009	390,743	—

a) Flour reduced to grain on the basis of the coefficient: 1,000 cents of flour = 1,333.33 cents of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 31 December. — 2) Data up to 30 June. — 3) Data up to 31 July. — 4) See Net Imports. — 5) See Net Exports. —

6) Wheat only.

STOCKS

STOCKS AND AVAILABLE SALEABLE SUPPLIES OF CEREALS AND POTATOES IN FARMERS' HANDS
IN GERMANY.

PRODUCTS	% Stocks : total production				% Available saleable quantities : total production			
	Sept., 15 1932	Sept., 15 1931	Sept., 15 1930	Sept., 15 1929	Sept., 15 1932	Sept., 15 1931	Sept., 15 1930	Sept., 15 1929
Winter wheat	81.8	76.4	76.8	82.9	67.5	60.6	63.5	67.9
Spring wheat	90.7	89.5	89.1	93.1	79.4	77.8	79.5	81.4
Winter rye	82.2	77.3	85.2	86.7	47.8	37.1	52.7	55.6
Winter barley	54.9	52.8	55.8	72.4	13.7	11.2	8.5	16.4
Spring barley	87.8	91.6	81.3	90.8	55.2	64.2	61.6	68.7
Oats	95.5	94.5	95.3	94.4	24.7	23.2	38.3	43.0
Potatoes	93.5	92.0	93.8	94.9	41.8	37.4	46.3	47.7

Authority : Preisberichtsstelle beim Deutschen Landwirtschaftsrat.

STOCKS OF CEREALS IN COMMERCIAL ELEVATORS AND MILLS IN GERMANY 1).

PRODUCTS	Last day of month			Last day of month		
	September 1932	August 1932	July 1932	September 1932	August 1932	July 1932
	1,000 centals			1,000 bushels or barrels		
WHEAT:						
Grain	15,181	8,589	3,446	25,301	14,315	5,743
Flour for bread	2,390	1,795	2,017	1,219	916	1,029
TOTAL 2)	18,367	10,981	6,136	30,610	18,305	10,225
RYE:						
Grain	13,248	9,872	3,534	23,657	17,629	6,311
Flour for bread	1,490	926	569	760	472	290
TOTAL 2)	15,234	11,107	4,292	27,204	19,832	7,664
BARLEY	2,981	2,432	1,561	6,210	5,066	3,252
OATS	1,294	849	536	4,044	2,652	1,674

1) See note under the corresponding table in the Bulletin for March, at page 218. — 2) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of flour = 1,333.33 centals of grain (1,000 barrels of flour = 4,355.55 bushels of wheat or 4,584.80 bushels of rye).

QUANTITIES OF CEREALS ON OCEAN PASSAGE WITH FIRST DESTINATION FOR EUROPE.

PRODUCTS	Saturday nearest to 1st of month					Saturday nearest to 1st of month				
	October 1932	Sept. 1932	August 1932	October 1931	October 1930	October 1932	Sept. 1932	August 1932	October 1931	October 1930
	1,000 centals					1,000 bushels				
Wheat (and flour in terms of wheat)	17,794	14,712	18,826	22,709	26,016	29,656	24,520	31,376	37,848	43,360
Rye	826	106	1,186	518	307	1,474	189	2,117	926	599
Barley	3,384	2,056	1,620	3,720	4,468	7,050	4,233	3,375	7,750	9,308
Oats	851	851	1,040	1,168	1,043	2,660	2,660	3,250	3,650	3,260
Maize	14,798	14,549	20,846	21,619	15,638	26,426	25,980	37,226	38,606	27,926

Authority : Broomhall's Corn Trade News.

COMMERCIAL CEREALS IN STORE IN CANADA AND THE UNITED STATES.

SPECIFICATION	Friday or Saturday nearest to 1st of month					Friday or Saturday nearest to 1st of month				
	October 1932	Sept. 1932	August 1932	October 1931	October 1930	October 1932	Sept. 1932	August 1932	October 1931	October 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Canadian in Canada	112,351	69,450	71,237	71,470	84,566	187,252	115,750	118,728	119,117	140,943
U. S. in Canada	5,102	7,288	9,218	19,507	3,347	8,503	12,147	15,364	32,511	5,579
U. S. in the United States . .	116,977	113,014	107,432	154,044	134,296	194,961	188,357	179,053	256,740	223,826
Canad. in the United States .	6,592	3,347	2,824	5,470	10,382	10,987	5,579	4,707	9,116	17,304
Total	241,022	193,099	190,711	250,491	232,591	401,703	321,833	317,852	417,484	387,652
RYE:										
Canadian in Canada	2,771	2,685	2,891	6,891	6,108	4,948	5,116	5,163	12,306	10,906
U. S. in Canada	55	68	90	688	1,758	99	121	160	1,229	3,139
U. S. in the United States . .	4,872	5,070	5,016	5,654	9,526	8,700	9,053	8,958	10,097	17,010
Canad. in the United States .	231	231	194	218	96	412	412	347	390	172
Total	7,929	8,234	8,191	13,451	17,488	14,159	14,702	14,628	24,022	31,227
BARLEY:										
Canadian in Canada	2,777	1,395	1,699	5,440	13,660	5,786	2,907	3,540	11,334	28,459
U. S. in Canada	55	10	0	12	278	114	20	1	24	579
U. S. in the United States . .	4,307	3,195	1,655	3,461	7,611	8,973	6,657	3,448	7,211	15,856
Canad. in the United States .	13	1	0	46	348	27	2	1	84	725
Total	7,152	4,601	3,354	8,953	21,897	14,900	9,586	6,990	18,653	45,619
OATS: (1)										
Canadian in Canada	2,473	1,952	2,129	3,239	3,262	7,728	6,100	6,652	10,122	10,193
U. S. in Canada	520	364	49	68	842	1,626	1,137	153	211	2,633
U. S. in the United States . .	9,267	8,752	4,399	5,562	10,529	28,960	27,351	13,748	17,380	32,904
Canad. in the United States .	0	0	0	13	18	0	0	0	41	55
Total	12,260	11,068	6,577	8,882	14,651	38,314	34,588	20,553	27,754	45,785
MAIZE:										
U. S. in Canada	1,576	273	253	289	532	2,815	487	451	516	950
Of other origin in Canada . .	143	321	552	295	540	255	573	985	527	964
U. S. in the United States . .	10,354	8,254	6,276	3,135	2,637	18,489	14,740	11,207	5,598	4,710
Total	12,073	8,848	7,081	3,719	3,709	21,559	15,800	12,643	6,641	6,624

1) For oats the bushel is of 32 lbs.

GRAIN AND FLOUR STOCKS AT THE PORTS OF GREAT BRITAIN AND IRELAND 1).

PRODUCTS	First of the month					First of the month				
	October 1932	Sept. 1932	August 1932	October 1931	October 1930	October 1932	Sept. 1932	August 1932	October 1931	October 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Grain	3,792	4,392	5,712	12,480	4,560	6,320	7,320	9,520	20,800	7,600
Flour as grain	768	600	840	768	864	1,280	1,000	1,400	1,280	1,440
TOTAL	4,560	4,992	6,552	13,248	5,424	7,600	8,320	10,920	22,080	9,040
Barley	580	300	400	720	700	1,208	625	833	1,500	1,458
Oats	400	336	480	896	608	1,250	1,050	1,500	2,800	1,900
Maize	3,624	2,976	2,496	1,680	1,968	6,471	5,314	4,457	3,000	3,514

Authority: *Broomhall's Corn Trade News.*

1) Imported cereals.

STOCKS OF COTTON ON HAND IN THE UNITED-STATES.

LOCATION	Last day of the month					Last day of the month				
	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930	Sept. 1932	August 1932	July 1932	Sept. 1931	Sept. 1930
	1,000 centals					1,000 bales (counting round as half bales)				
In consuming establishments	5,341	5,355	5,989	3,806	4,696	1,087	1,090	1,219	776	971
In public storage and at compresses . . .	39,202	32,211	32,975	30,975	25,383	7,969	6,348	6,703	6,297	5,241
TOTAL . . .	44,543	37,566	38,964	34,781	30,079	9,056	7,638	7,922	7,073	6,212

STOCKS OF COTTON AT BOMBAY AND AT ALEXANDRIA.

PORTS	Thursday nearest to 1st of month					Thursday nearest to 1st of month				
	October 1932	Sept. 1932	August 1932	October 1931	October 1930	October 1932	Sept. 1932	August 1932	October 1931	October 1930
	1,000 centals					1,000 bales (1 bale = 478 lbs.)				
Bombay 1)	2,684	2,995	3,152	2,144	2,096	562	627	659	449	438
Alexandria	3,257	3,326	3,745	4,103	3,686	681	696	783	858	771

Authorities: East Indian Cotton Ass. and Commission de la Bourse de Minet-el-Bassel.

1) Stocks held by exporters, dealers and mills.

STOCKS OF COTTON IN EUROPE.

COUNTRIES, PORTS, DESCRIPTIONS	Thursday or Friday nearest to 1st of month					Thursday or Friday nearest to 1st of month				
	October 1932	Sept. 1932	August 1932	October 1931	October 1930	October 1932	Sept. 1932	August 1932	October 1931	October 1930
	1,000 centals					1,000 bales (1 bale = 478 lbs.)				
<i>Great Britain:</i>										
American	1,752	1,801	1,682	1,395	1,230	366	377	352	292	257
Argentine, Brazilian, etc.	171	131	90	222	309	36	27	19	46	65
Peruvian, etc. . . .	315	309	208	282	403	66	65	43	59	84
East Indian, etc. . .	272	293	329	574	234	57	61	69	120	49
Egyptian, Sudanese	1,483	1,454	1,547	1,265	1,266	310	304	324	265	265
Other 1)	112	110	111	233	271	24	23	23	49	57
TOTAL	4,105	4,098	3,967	3,971	3,713	859	857	830	831	777
<i>Bremen:</i>										
American	1,398	1,322	1,968	872	968	292	277	307	183	190
Other	46	44	29	65	34	10	9	6	13	7
TOTAL	1,444	1,366	1,997	937	942	302	286	313	196	197
<i>Le Havre:</i>										
American	624	562	677	896	583	131	118	142	188	122
Other	53	58	62	140	191	11	12	13	29	40
TOTAL	677	620	739	1,036	774	142	130	155	217	162
<i>Total Continent 2):</i>										
American	2,500	2,448	2,828	1,639	1,683	523	512	592	343	352
Argentine, Brazilian, etc.	38	73	30	97	84	8	6	6	20	18
E. Indian, Australian, etc.	64	70	171	246	14	15	15	36	51	
Egyptian	140	134	127	117	75	29	28	26	25	16
W. Indian, W. African, E. African, etc.	36	36	32	40	114	7	8	7	8	24
TOTAL	2,778	2,727	3,087	2,064	2,202	581	571	646	432	461

Authority: Liverpool Cotton Ass.

1) Includes: W. Indian, etc.; E. African, etc.; W. African, and Australian. — 2) Includes Bremen, Havre, and other Continental ports

IMPORT DUTIES ON CEREALS AND FLOUR

CHANGES TO BE MADE IN THE DUTIES PUBLISHED ON PAGES 160 TO 163 OF THE CROP REPORT FOR FEBRUARY
(SEE ALSO THE SAME HEADING IN THE PRECEDING CROP REPORTS FOR THIS YEAR).

COUNTRY	PRODUCT	Date when enforced	Original data per metric quintal	Data in Amer. cents per bushel or barrel
Belgium	Soft wheat of the same type as the Belgian wheat	22 September	1) 7.50	1) n. 36.71
Spain	Maize	11 September	pes. 8.50	n. 41.60
Irish Free State	Maize	21 September	2) 7.6	55.53
" " "	Barley, general tariff	27 September	3) sh. 5-	37.01
" " "	Barley, preferential tariff	28 September	3) " 5-	37.02
" " "	Oats, general tariff	"	3) " 5-	24.67
" " "	Oats, preferential tariff	"	3) " 5-	64.79
" " "	Maize, general tariff	"	3) " 5-	43.18
" " "	Maize, preferential tariff	"	3) " 5-	47.15
Finland	Rye	1 October	Fmk. 125.00	191.43
" " "	Rye flour unbolted	"	" 145.00	297.09
" " "	Rye flour bolted	"	" 225.00	297.09
France	Barley	22 September	4) frs. 24.00	23.87
" " "	Maize, small grain, Bessarabia type	17 September	" 26.00	25.86
" " "	Maize, for starch and glucose manufacture: under special conditions	"	" 26.00	25.86
Switzerland	Wheat, rye, barley, oats, maize, flour deconditioned for fodder	15 August	5)	5)

1) Imports prohibited. — 2) Import allowed only with special licence. — 3) Duty per cwt. — 4) Imports restricted till the end of 1932, to 262,000 metric quintals (1,203,382 bushels). — 5) Import limited to predetermined quotas and under special licence.

Price quotations for butter in the Netherlands.

(Explanatory note to the table of butter prices in the monthly and quarterly review of prices on pages 724 and 727).

The law on dairy production in the crisis came into force on 10 July 1932. This law provides for the payment of a price sufficient to prevent heavy losses to producers for all cow's milk marketed; this is achieved by a special system of taxes levied on butter and other food fats for internal consumption. In connection with this law the wholesale prices of butter for the internal market have been artificially increased so that there is a very considerable margin between the internal price (for which Maastricht is the most important market) and the export price (fixed weekly at Leeuwarden by a special commission). To prevent excessive fluctuations in the price of butter at the time when the law came into force the prices were already raised artificially at the beginning of June.

The following table illustrates the differences:—

MONTH AND DAY 1)	Prices in florins per kg.		MONTH AND DAY 1)	Prices in florins per kg.	
	Leeuwarden (export)	Maastricht (internal market)		Leeuwarden (export)	Maastricht (internal market)
Average January 1932	1.16	1.14	22 July 1932	0.86	1.25
" February "	1.32	1.32	29 " "	0.80	1.35
" March "	0.97	n. 1.05	5 August "	0.75	1.35
" April "	0.98	1.01	12 " "	0.78	1.30
" May "	0.83	0.90	19 " "	0.76	1.33
3 June "	1.00	0.84	26 " "	0.76	1.31
10 " "	1.15	1.14	2 September "	0.83	1.33
17 " "	1.15	1.15	9 " "	0.83	1.48
24 " "	1.15	1.15	16 " "	0.86	1.48
1 July "	1.15	1.15	23 " "	0.83	1.51
8 " "	1.15	1.20	30 " "	0.83	1.48
15 " "	0.83	1.20			

2) For Leeuwarden the Friday indicated, for Maastricht the preceding Tuesday.

MONTHLY REVIEW OF PRICES 1)

PRODUCTS, MARKETS AND DESCRIPTION	14	7	30	23	AVERAGE 2)					Commercial Season	
	Oct.	Oct.	Sept.	Sept.	Sept.	Oct.	Oct.				
	1932	1932	1932	1932	1932	1932	1930			1931-32	1930-31
WHEAT.											
Budapest (a): Tisza region (78 80 kg. p. hl.; pengő p. quintal)	14.12	14.22	14.07	14.15	14.11	9.80	15.50	12.28	15.34		
Braila: Good quality (lei p. quintal)	n. 500	475	480	480	479	277	346	305	351		
Winnipeg: No. 1 Manitoba (cents p. 60 lbs)	48 3/4	48 3/4	49 1/4	50 1/4	51 3/4	60 1/4	73	59 3/4	64 1/4		
Chicago: No. 2 Hard Winter (cents p. 60 lbs)	n. 49 1/4	50 1/4	53 3/4	n. 53 3/4	53 3/4	52 3/4	79	54 3/4	78		
Minneapolis: No. 1 Northern (cents p. 60 lbs.)	49 1/4	51 1/4	55	55 1/4	55 3/4	68 1/4	81 3/4	66 7/8	77 7/8		
New-York: No. 2 Hard Winter (cents p. 60 lbs.)	51 1/4	58	61 3/4	61 3/4	62 3/4	65 3/4	89 3/4	66 7/8	91 1/4		
Buenos Aires (b): Barletta (80 kg. p. hectol.; pesos paper p. quintal)	6.75	6.85	7.10	7.00	7.03	7.01	8.20	6.68	6.83		
Karachi: Karachi white, 2 % barley, 1 1/2 % dirt (rupees p. 656 lbs.)	29-4-0	29-10-0	29-12-0	28-14-0	28-15-7	18-3-10	21-8-5	21-15-9	19-15-2		
Berlin: Home grown (Reichsmarks p. quintal)	20.00	20.20	20.50	21.00	20.84	21.57	22.74	23.63	26.00		
Hamburg, c. i. f. (Reichsmarks p. quintal):											
No. 2 Manitoba 3)	8.72	8.97	9.04	9.18	9.25	10.10	13.72	10.38	12.65		
No. 2 Hard Winter	n. q.	n. q.	n. q.	n. q.	4) n. 10.07	9.01	14.19	n. 9.32	n. 13.00		
Barusso (79 kg. p. hectol.)	5) 8.65	8.71	8.83	8.97	8.99	8.49	12.48	8.78	11.10		
Antwerp (Belgian francs p. quintal):											
Home grown	82.00	83.00	82.00	80.00	72.80	n. q.	87.50	83.10	95.50		
No. 2 Hard Winter, Gulf	4) 80.00	83.00	82.00	4) 80.00	4) 83.00	4) 76.00	112.00	4) 81.75	112.50		
Paris: Home-grown, 75-77 kg. (francs p. quintal)	116.50	115.00	109.00	116.50	117.25	162.45	168.80	167.10	175.00		
London: Home grown (shillings p. 304 lbs.)	25/-	24/9	24/9	24/9	24/5	25/7	30/-	26/5	27/1		
London and Liverpool c. i. f., shipping current month (shillings p. 480 lbs.) 11):											
South Russian (on sample)	25/-	26 1/16	26/3	27/6	n. 26/10	22/8	25/6	22/3	23/7		
No. 3 Manitoba	25/-	25/6	25 7/12	26/-	26/2	24/3	28/4	25/9	25/4		
No. 2 Hard Winter	n. q.	n. q.	n. q.	4) 27 7/12	4) n. 27/10	23/-	28/4	25/3	26/4		
White Pacific	n. q.	n. q.	7) 28/9	7) 28/9	7) n. 28/9	n. 27/9	28/7	26/5	26/7		
Rosate (63 1/2 lbs.), afloat	8) 29/9	26/6	26 10/16	27/3	9) 27/1	10) 23/5	10) 26/10	23/8	23/5		
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	n. 25/6	28/7	n. q.	27/-		
Australian	26/6	27 1/16	28/6	29/3	28/9	25/8	29/2	25/9	25/7		
Milan (a): Home-grown, soft (lire p. quintal)	104.50	104.50	105.00	104.00	104.00	94.80	119.10	106.20	109.10		
Genoa c. i. f. (shillings p. metric ton): La Plata.	11) n. 1.98	12) n. 2.00	n. q.	11) n. 2.13	12) 2.14	n. q.	121/-	11) n. 2.21	110/-		
RYE.											
Budapest (a): Home-grown (pengő p. quintal)	7.55	7.35	7.37	7.55	7.31	9.75	8.15	12.24	10.79		
Berlin: Home-grown (Reichsmarks per quintal)	15.70	15.60	15.80	16.10	16.10	18.82	14.77	19.00	17.18		
Hamburg c. i. f.: La Plata, 74-75 kg. (R. M. p. quintal)	13) 6.52	6.52	6.76	6.77	6.82	n. q.	n. q.	8.36	n. 7.65		
Minneapolis: No. 2 (cents p. 56 lbs.)	31	32	31 1/2	34	34	41 1/2	49 3/4	42 1/2	42 1/8		
Groningen (c): Home-grown (florins p. quintal)	3.92	3.90	3.95	4.15	4.14	4.40	4.52	5.13	4.45		
BARLEY.											
Braila: Average quality (lei p. quintal)	210	202	205	206	205	219	182	263	232		
Winnipeg: No. 4 Western (cents p. 48 lbs.)	23 7/8	23 7/8	24 1/2	26 1/4	28 1/4	31 3/4	25 7/8	34 7/8	26 1/4		
Chicago: Feeding (cents p. 48 lbs.)	29	26	26	25 1/2	27 3/4	47 3/4	48 1/4	43 3/4	43 7/8		
Berlin: Home-grown fodder (Reichsmarks per quintal)	17.05	17.00	17.00	17.00	16.95	15.70	17.25	16.41	19.52		
Antwerp: Danubian (francs p. quintal)	58.00	59.00	62.50	61.50	62.10	63.50	65.00	77.25	73.25		
London: English malting (shillings p. 448 lbs.)	37/6	35/-	35/-	35/-	35/-	41/-	40/-	39/4	35/8		
London and Liverpool, c. i. f., parcels (shillings per 400 lbs.):	n. q.	n. q.	18/-	18/-	17/11	n. q.	13/2	n. q.	15/2		
Danubian 3 %	15/9	15/9	16/6	17/3	17/5	17/3	13/2	18/11	14/3		
Russian (Azoff-Black sea)	17/3	16/9	17/9	18 7/12	19/-	18/8	16/1	20/11	15/11		
Canadian Western, N. 3	21/3	21/3	21/6	21/6	21/7	35/2	26/5	33/4	27/8		
Californian malting (shillings p. 448 lbs.)	4.90	5.00	4.95	4.95	4.98	5.25	4.64	5.87	4.97		
Groningen (c): Home grown winter (fl. p. quintal)											

a) Saturday prices. — b) Thursday prices. — c) Prices of preceding Tuesday.

1) All quotations are, unless otherwise stated, for spot. — 2) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 3) In stead of No. 3 Manitoba. — 4) No. 1 Hard Winter. — 5) 80 Kg. p. hl. — 6) German (on sample): 14 Oct.: 23 7/8; 7 Oct.: 24 1/4; 30 Sept.: 26/-; 23 Sept.: 26/-; September average: 25 7/8. — 7) Shipping Oct.-November. — 8) Shipping January-February. — 9) 64 lbs. p. bushel. — 10) 63 lbs. per bushel. — 11) Price in \$ per quintal. — 12) 16 Sept.: n. \$ 2.13. p. quintal. — 13) Russian (72-73 kg. p. hl.).

PRODUCTS, MARKETS AND DESCRIPTION	14	7	30	23	AVERAGE (1)				
	Oct.	Oct.	Sept.	Sept.	Sept.	Oct.	Oct.	Commercial	
	1932	1932	1932	1932	1932	1931	1930	1931-32	1930-31
OATS.									
Braila: Good quality (lei p. quintal)	n.230	205	205	205	205	258	169	285	247
Winnipeg: No. 2 White (cents per 34 lbs.)	23 1/4	23 1/8	23 7/8	23 1/8	26	31 1/2	32 1/8	31 1/8	30
Chicago: No. 2 White (cents per 32 lbs.)	16 7/8	15 3/4	17 1/8	18 1/4	17 2/4	24 3/8	36 1/8	24 1/8	32 7/8
Buenos Aires (a): Current quality (pesos paper p. quintal)	5.30	5.45	5.70	5.45	5.60	5.67	3.66	5.33	3.58
Berlin: Home grown (Reichsmarks p. quintal) . . .	13.65	13.75	13.65	13.85	13.85	14.33	14.50	15.10	16.17
Paris: Home grown, black and other (francs p. quintal)	87.00	86.75	90.50	88.50	86.70	89.20	78.20	101.75	81.00
London: Home grown white (shillings p. 336 lbs.)	18/9	18/9	18/9	18/9	19/-	20/-	18/-	21/3	18/4
London and Liverpool c. i. f., parcels (shillings p. 320 lbs.):									
Danubian (39-40 lbs.)	14/6	14/9	14/10 1/2	14/10 1/2	14/10	n. q.	11/6	n. q.	n. 12/1
Plate (f. a. q.)	14/7 1/2	15/-	15/1 1/2	15/1 1/2	15/4	15/4	10/10	14/5	10/9
Chilian Tawny	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	13/1	n. 16/-	12/-
Milan (b): spot (lire p. quintal):									
Home grown	67.50	67.50	67.50	67.50	67.50	71.40	77.70	73.60	73.95
Foreign imported	63.50	65.50	65.50	65.50	65.50	64.90	60.40	65.20	60.40
MAIZE.									
Braila: Danubian (lei p. quintal)	2)167	2)175	196	198	198	144	225	210	309
Chicago: No. 2 Mixed American (cents p. 56 lbs.)	26 1/2	26	27 3/8	29 1/2	30 1/4	39 1/4	83 1/2	58 1/4	85 7/8
Buenos Aires (a): Yellow Plate (pesos paper p. quintal)	4.55	4.52	4.77	4.92	4.89	4.25	4.89	3.82	6.17
Antwerp, spot (Belgian francs p. quintal):									
Bessarabian	n. q.	n. q.	n. q.	n. q.	n. q.	60.50	84.00	71.25	n. 97.50
Argentine Cinquantino	61.00	62.00	62.50	62.50	63.20	52.50	100.50	81.00	131.25
Yellow Plate	56.00	56.00	57.50	57.00	56.70	50.00	84.00	65.00	109.25
London and Liverpool, parcels, c. i. f. (shillings p. 480 lbs.) 3):									
Danubian	18/6	18/9	4)19 4/2	4)19 7/2	19/10	17/4	19/8	n. 17/4	24/11
Yellow Plate	17/10 1/2	18/1 1/2	18/6	18/6	19/-	15/5	19/8	n. 15/6	25/3
No. 2 White African	20/-	n. q.	4) 21/1	4)21 1/2	4) 21/1	19/11	19/3	n. 18/1	26/-
Milan (b): Home grown (lire p. quintal)	57.00	57.00	57.00	57.00	n. 57.00	56.80	55.40	51.90	71.35
RICE (CLEANED).									
Milan (b): Maratelli (lire p. quintal)	139.50	138.00	140.00	145.00	155.20	129.40	125.80	117.35	152.15
Rangoon: No. 2 Burma (rupees p. 7500 lbs.) . .	n. q.	240	250	252 1/2	261 1/2	276	350	249 1/4	393 3/4
Saigon (Indo-chinese piastres p. quintal):									
No. 1 Round white (25 % broken) . . . . .	...	...	...	...	5) ...	6.44	10.18	6.73	11.36
N. 2 Japan (40 % broken) . . . . .	...	...	...	...	6) ...	6.01	9.59	6.20	10.89
London (a): c. i. f. (shillings p. 112 lbs):									
Spanish Belloch, No. 3 oilied	13/3	13/1 1/2	13/1 1/2	13/1 1/2	2) 13/3	12/11	12/7	11/11	14/1
Italian good, No. 6 oilied	2) 13/-	n. q.	n. q.	n. q.	n. q.	n. q.	13/1	13/7	14/11
American Blue Rose	16/6	18/-	18/-	18/-	2) 18/-	16/6	19/8	18/7	21/9
Burma, No. 2	7/10 1/2	7/9	8/1	8/2	8/3	8/6	10/1	7/11	10/11
Saigon, No. 1	7/9	7/10 1/2	8/1 1/2	8/-	8/-	8/9	10/3	8/1	11/6
Siam, Garden, No. 1	7) 8/7 1/2	7)8/7 1/2	7) 8/9	7)8/10 1/2	7) 8/11	11/5	n. q.	9/5	14/-
Tokio: Various qualities (yens p. koku)	18.20	18.50	18.90	n. q.	19.87	17.28	18.90	18.46	25.57
LINSRED.									
Buenos Aires (a): Current quality (pesos paper p. quintal)	9.50	9.50	10.20	10.40	10.19	11.43	14.34	10.82	17.19
Antwerp: Plate (Belgian francs p. quintal) . . .	107.00	110.00	113.00	116.50	111.40	120.00	222.00	146.00	284.25
Hull, c. i. f.: Plate (p. sterling p. 1 ton) . . .	8-15-0	8-15-0	9-0-0	9-7-6	9-3-6	8-17-6	12-3-0	8-14-1	15-0-5
London, c. i. f.: Bombay bold (p. st. p. long ton)	11-12-6	12-0-0	12-0-0	12-5-0	11-19-0	11-8-0	15-3-6	11-9-6	17-14-4
Duluth: No. 1 Northern (cents p. 56 lbs.) . . .	109 3/4	106 1/8	114 3/4	113 3/4	113 3/4	129 7/8	177 1/2	148	236

a) Thursday prices. — b) Saturday prices.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) New crop. — 3) Shipping (Octobre-Novembre). Yellow Novorossiisk: 14 Oct. 18/3; 7 Oct. 18/9; 30 Sept. 19/-; 23 Sept. 19/6; 16 Sept. 20/-; 9 Sept. 20/3; 2 Sept. n. q.; Sept. average: n. 19/8; White Novorossiisk: 14 Oct. 18/9; 7 Oct. 19/3; 30 Sept. 19/6; 23 Sept. 20/-; 16 Sept. 20/3; 9 Sept. n. q.; 2 Sept. n. q.; September average: n. 19/11. — 4) Shipping October-November. — 5) 16 Sept. 4/98; 9 Sept. 5/11; 2 Sept. 4/98; 26 August: 5/17; August average: 5/38. — 6) 16 Sept. 4/65; 9 Sept. 4/78; 2 Sept. 4/65; 26 August: 4/94; August average: 5/11. — 7) Siam special.

PRODUCTS, MARKETS AND DESCRIPTION	AVERAGE 1)								Commercial Season		
	14	7	30	23	Sept.	Oct.	Oct.	Oct.			
	Oct.	Oct.	Sept.	Sept.							
	1932	1932	1932	1932				1932	1931	1930	1930-31	1929-30
COTTONSEED.											
Alexandria: Sakellaridis (piastres per ardeb) . . .	68.5	66.0	2) 66.0	2) 68.8	67.9	57.6	53.8	52.2	67.9		
Hull: Sakellaridis (p. sterl. per long ton)	6-16-3	6-12-6	6-13-9	7-1-3	7-0-3	6-4-9	5-8-9	5-12-6	6-18-2		
COTTON.											
New Orleans: Middling (cents per lbs.)	6.47	6.97	7.25	7.24	7.63	6.05	10.45	6.20	10.07		
New York: Middling (cents per lbs.)	6.55	7.05	7.25	7.35	7.70	6.28	10.65	6.35	10.38		
Bombay: M. g. Broach f. g. (rupees per 784 lbs.).	200	215	211	224	227	170 1/2	199 1/2	181 1/2	191 1/4		
Alexandria (talariis per kantar):											
Sakellaridis f. g. f.	14.80	14.90	15.25	16.45	16.51	12.85	17 7/8	12.17	17.12		
Ashmuni (Upper Egypt) f. g. f.	12.82	12.85	12.55	13.35	13.55	9.03	11 1/8	9.73	12.00		
Bremen: Middling (U. S. cents per lbs.)	7.66	8.24	8.13	8.75	8.82	7.24	11.78	7.44	11.59		
M. g. Broach fully good (pence per lbs.) . . .	n. 5.00	n. 5.10	n. 5.10	n. 5.30	n. 5.30	n. 3.85	n. 4.45	n. 4.48	n. 4.63		
Le Havre: Middling, Gulf (frances per 50 kg.) .	234.00	248.00	242.00	255.00	263.40	201.00	355.00	216.00	349.00		
Liverpool (pence per lbs.):											
Middling fair	n. 6.58	n. 6.99	n. 6.78	n. 7.12	n. 7.16	n. 5.84	n. 7.03	n. 5.85	n. 6.93		
Middling	5.43	5.84	5.73	6.07	6.13	4.72	5.86	4.79	5.72		
São Paulo, good fair	n. 5.68	n. 6.09	n. 5.98	n. 6.32	n. 6.38	4.84	6.10	n. 4.98	5.91		
M. g. Broach, fully good	n. 4.91	n. 5.39	n. 5.27	n. 5.68	n. 5.69	n. 4.12	n. 4.22	n. 4.34	n. 4.25		
Sakellaridis, fully good fair	7.97	8.30	8.35	8.75	8.67	7.16	9.67	6.76	9.08		
BUTTER.											
Copenhagen (a) Danish (Crs. p. quintal)	180.00	188.00	185.00	193.00	192.00	213.00	246.00	209.00	245.00		
Leeuwarden, Commission for the Dutch butter											
quotations: (florins per kg.) 3)	0.82	0.85	0.83	0.83	0.84	1.24	1.63	1.34	1.66		
Maastricht, auction (b): Dutch (florins p. kg.) 3)	1.52	1.48	1.48	1.51	1.46	1.24	1.67	1.38	1.70		
Hamburg, auction (c): Schleswig-Holstein butter,											
with quality mark (R. M. per 50 kg.)	120.00	119.48	116.60	114.57	113.70	130.77	148.30	131.22	146.67		
Kempten (c): Allgäu butter (Pfennige p. half kg.)	4) 103	4) 100	4) 105	4) 105	4) 104	101	120	110	128		
London (d) (shillings p. cwt.):											
British blended	135/4	135/4	135/4	135/4	135/4	141/9	147/4	140/4	158/8		
Danish	126/-	126/-	127/-	128/-	124/2	138/-	152/10	133/4	153/6		
Irish creamery, salted	114/-	116/-	116/-	116/-	115/5	126/10	126/-	119/3	134/10		
Dutch	116/-	116/-	116/-	116/-	115/5	137/9	145/7	132/1	151/11		
Argentine	100/-	100/-	100/-	102/-	101/-	120/10	126/10	117/7	135/10		
Siberian	5) 96/-	n. g.	5) 97/-	5) 97/-	5) 95/6	6) 101/5	121/2	6) 97/4	131/6		
Australian, salted	110/-	112/-	113/-	113/-	111/2	120/7	124/10	116/8	135/9		
New Zealand, salted	122/-	122/-	122/-	121/-	119/5	127/7	126/5	119/11	137/8		
CHEESE.											
Milan (lire per quintal):											
Parmigiano-Reggiano, 1st quality of last year's											
production	962.00	950.00	950.00	950.00	950.00	975.00	1,100.00	1,103.00	1,160.00		
Green Gorgonzola, mature, choice	590.00	545.00	525.00	515.00	493.00	617.00	706.00	616.00	671.00		
Rome: Roman pecorino, choice (lire p. quintal) .	1,275.00	1,275.00	1,187.00	1,187.00	1,180.00	1,151.00	1,160.00	1,121.00	1,207.00		
Alkmaar: Edam 40 + (40 % butterfat, with the											
country's cheesemark, factory cheese, small;	26.00	23.00	23.00	22.50	21.90	29.50	40.20	32.63	40.83		
florins p. 50 kg.)											
Gouda: Gouda 45 + (whole milk cheese, with											
the country's cheesemark, home made; florins	31.00	30.00	28.50	28.50	26.40	37.30	46.90	37.93	45.56		
p. 50 kg.)											
Kempten (c); (Pfennige per half kg.):											
Soft cheese, green (20 % butterfat)	22 1/2	22 1/2	22 1/2	22 1/2	22 1/2	25	31	24	27		
Emmenthal from the Allgäu (whole milk											
cheese) 1st quality	77 1/2	77 1/2	77 1/2	77 1/2	80 1/2	98	7) 91	97 1/2	7) 97		
London (d) (shillings per cwt.):											
English Cheddar	100/-	98/-	98/-	98/-	97/7	91/10	95/2	99/10	103/4		
Canadian	69/-	68/-	68/-	66/6	66/-	71/11	81/8	75/9	93/11		
New Zealand	66/6	65/6	65/6	66/-	64/4	72/-	76/1	63/2	82/2		
Liverpool (d): Engl. Cheshire, ungraded (sh. p. cwt.)	95/8	86/4	81/8	81/8	77/11	91/11	87/3	94/3	97/5		

a) Thursday prices. — b) Prices of preceding Tuesday. — c) Wednesday prices. — d) Average prices for weeks ending on preceding Wednesday.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) New crop. — 3) See explanation page 721. — 4) Quoting system changed: actual prices are generally 3 Pf. higher than according to the former system used in Kempten. — 5) Russian. — 6) Average calculated from the prices for the Fridays and the Thursdays preceding. — 7) Average price for all qualities.

QUARTERLY REVIEW OF PRICES 1)

GROUPS	COUNTRIES AND PRODUCTS	AVERAGE							Agricultural year 2)	
		Sept.	August	July	April-June	July-Sept.	July-Sept.	1931-32	1930-31	
		1932	1932	1932	1932	1931	1930			
GERMANY (Prices in Reichsmarks per quintal)										
A I	Wheat (Berlin)	20.84	3) 21.10	23.94	26.47	22.19	25.95	23.64	26.39	
	Rye (Berlin)	16.10	3) 15.95	18.11	19.70	17.56	17.07	19.02	17.15	
	Barley, feeding (Berlin)	16.95	3) 16.19	16.48	17.77	15.55	18.59	16.35	19.64	
	Oats (Berlin)	13.85	3) 14.55	16.15	16.34	14.77	17.54	15.07	16.28	
	Potatoes (Berlin)	2.82	4) 4.24	4) 6.43	3.43	3.06	n. q.	3.57	3.29	
A II	Milk, fresh (Berlin)	13.85	13.79	13.75	15.07	16.72	17.41	15.06	17.62	
	Butter (Hamburg)	227.40	209.56	215.28	228.08	260.98	294.24	245.35	282.10	
	Cheese, Emmentaler variety (Kempten) 6)	161.50	166.00	166.00	166.00	200.00	192.00	180.10	192.00	
	Beef, live weight (Berlin)	70.70	71.60	76.80	71.18	89.73	118.53	76.06	106.32	
	Veal, live weight (Berlin)	89.00	78.80	67.50	72.40	97.00	141.00	81.87	126.23	
	Pork, live weight (Berlin)	80.20	87.40	80.00	68.47	105.86	126.10	85.17	110.44	
B I	Basic slag (Aachen) 7)	0.225	0.225	0.225	8) 0.221	0.25	0.31	0.23	0.30	
	Superphosphate of lime 18 %	5.96	5.96	5.96	9) 5.96	6.51	6.44	6.15	6.51	
	Potash salts 38-42 % 7)	0.170	0.170	0.165	10) 0.162	0.152	0.152	0.159	0.151	
	Sulphate of ammonia 7)	0.70	0.68	0.68	0.76	0.68	0.78	0.73	0.83	
	Nitrate of lime 7)	0.92	0.92	0.92	0.99	0.95	0.96	0.98	1.03	
B II	Wheat bran (Hamburg)	9.29	10.62	10.25	10.83	10.59	7.74	9.86	9.97	
	Linseed cake (Hamburg)	10.39	10.34	10.24	10.56	13.45	16.88	12.23	15.39	
	Coconut cake (Hamburg)	10.45	10.36	10.26	10.93	11.88	14.05	11.30	13.32	
	Groundnut cake (Hamburg)	11.49	11.24	11.12	11.33	11.51	13.49	11.99	12.50	
	Crushed soya extraction residue (Hamburg)	10.96	10.77	10.28	10.82	11.95	14.17	11.26	13.44	
DENMARK (Prices in Danish crowns per quintal)										
A I	Wheat (Copenhagen)	3) 11.25	n. q.	n. q.	13.50	n. 12.12	14.00	11.92	12.41	
	Barley (Copenhagen)	3) 12.60	n. q.	13.00	14.42	n. 11.00	11.70	13.13	11.18	
	Oats (Copenhagen)	3) 11.50	12.00	12.37	13.14	12.53	11.80	12.87	11.86	
A II	Butter (Copenhagen)	192.00	166.00	165.50	157.00	200.00	246.00	192.50	225.00	
	Eggs	124.00	91.00	82.00	63.43	97.00	119.00	98.00	121.00	
	Pork, live weight	93.20	87.00	73.00	70.67	84.00	122.00	73.00	98.00	
B I	Superphosphate 18 %	5.56	5.25	5.25	5.95	5.37	5.79	5.65	5.85	
	Potash salts 40 %	13.15	12.95	13.75	13.75	11.95	12.46	12.98	12.62	
	Sulphate of ammonia	12.97	12.58	12.35	12.35	11.87	18.12	12.18	17.43	
	Nitrate of lime, Norwegian	13.00	13.00	13.45	13.45	14.23	16.27	13.73	16.35	
B II	Rye, imported (Jutland)	10.03	9.60	9.45	11.43	7.45	9.65	10.31	8.60	
	Maize, Plate (Jutland)	9.91	9.52	9.17	9.43	7.00	11) 12.00	8.64	11) 8.30	
	Wheat bran (Copenhagen)	9.75	9.58	9.07	10.37	7.69	8.93	9.26	9.12	
	Cottonseed cake (Copenhagen)	13.97	12.78	11.72	11.71	11.18	15.75	12.18	14.37	
	Sunflower-seed cake (Copenhagen)	13.15	12.34	11.22	10.48	11.15	13.30	11.50	12.55	
	Groundnut cake (Copenhagen)	15.75	14.95	14.07	13.83	11.59	13.40	13.99	12.58	
	Crushed soya extraction residue (Copenhagen)	15.25	14.06	13.37	13.57	11.46	13.56	12.94	13.08	

1) Each quarter a list is published for several countries containing prices of plant (A I) and animal (A II) products sold by the farmer, as well as of fertilisers (B I), and of concentrated feeding stuffs for livestock (B II) bought by the farmer. — In the case where the market is not indicated, the price is the average one for the country. — The prices paid to farmers for sugar-beet are generally fixed once a year and therefore are not inserted in these tables. — 2) July to June. — 3) New Crop. — 4) Early variety. — 5) August-September average. — 6) From January 1931 prices of the first quality before that date average prices of all qualities. — 7) Prices per unit contained in one quintal. — 8) June: 0.225. — 9) June: 5.96. — 10) June: 0.162. — 11) Prices in Copenhagen.

GROUPS	COUNTRIES AND PRODUCTS	AVERAGE							Agricultural year	
		Sept.	August	July	April	July	July			
		1932	1932	1932	June 1932	Sept. 1931	Sept. 1930	1931-32	1930-31	
FRANCE (Prices in francs per quintal)										
A I	Wheat (Paris)	117.25 ¹⁾	124.35	160.45	172.55	165.85	166.80	167.75	173.90	
	Rye (Paris)	82.00	79.00	85.00	107.00 n.	91.00	91.65	99.65	84.60	
	Malting barley (Paris)	83.00	79.00	86.00	95.70 n.	90.50	95.65	96.25	92.35	
	Oats (Paris)	86.70 ¹⁾	83.60	113.80	114.60	84.80	77.45	99.35	79.80	
	Wine, red (southern markets) (hectol.)	125.00	128.00	121.00	83.00	148.00	140.00	101.00	154.00	
A II	Beef, dead weight (Paris)	747.00	657.00	716.00	737.00	931.00	1,123.00	783.00	1,050.00	
	Pork, live weight (Paris)	714.00	692.00	718.00 ²⁾	648.00	647.00	742.00	593.00	665.00	
	Mutton, dead weight (Paris)	1,033.00	1,040.00	1,108.00	1,116.00	1,329.00	1,476.00	1,123.00	1,504.00	
B I	Basic slag, 18 % (Lorraine)	23.40	23.40	23.40	23.40	23.40	25.20	23.40	24.30	
	Superphosphate 14 % (North and East)	25.00	27.00	27.00	27.15	29.05	31.45	27.75	31.15	
	Sylvinit, minimum 12 %	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	
	Nitrate of soda (Dunkirk)	94.35	92.00	91.00	99.85	102.00	106.75	101.25	109.40	
	Sulphate of ammonia 20.4 %	95.50	94.50	94.50	99.65	103.25	111.05	101.85	112.20	
B II	Linseed cake (North)	71.00	71.00	70.25	72.15	87.00	112.00	80.00	103.00	
	Coconut cake (Marseilles)	67.00	67.00	67.00	67.00	73.00	75.00	70.00	73.00	
	Groundnut cake (Marseilles)	73.00	73.00	70.25	73.35	80.00	78.00	78.75	85.00	

GREAT BRITAIN (A: Prices in shillings and pence per cwt;

B: Prices in pounds sterling, etc. per long ton)

A I	Wheat	1) 5/11	n. q.	6/6	6/2	5/11	8/-	6/3	6/6	
	Fodder barley	1) n. 6/-	n. q.	6/10	6/11	5/9	6/3	6/7	5/10	
	Oats	1) 6/6	n. 6/8	8/6	8/1	6/7	6/3	7/6	6/4	
	Potatoes (London)	4/10 n.	5/1	3) 8/6	11/11	6/7	5/3	9/10	7/-	
A II	Butter (London)	135/4	135/4	132/6	131/11	140/-	154/-	136/-	144/9	
	Cheese, Cheddar (London)	97/7	94/-	4) 100/-	121/8	4) 97/10	93/4	109/-	98/4	
	Beef, dead weight (London)	71/9	75/10	78/9	80/11	89/4	85/7	76/-	79/2	
	Mutton, dead weight (London)	65/11	68/3	70/11	78/2	99/7	115/1	84/2	107/10	
	Pork, dead weight (London)	70/7	61/3	59/3	68/10	75/10	107/9	74/4	102/10	
B I	Basic slag 14 % (London)	2- 3-0	2- 3-0	2- 3- 0	2- 1-5	2- 1- 0	2- 3- 0	2- 1- 6	2- 2-3	
	Superphosphate, 16 % (London)	2-16-0	2-16-0	2-16- 5	2-17-0	2-19- 0	3- 6- 0	2-17- 2	3- 3-6	
	Kainit 14 % (London)	3- 3-0	3- 3-0	3- 3-10	3- 6-0	2-18-11	2-18-10	3- 3- 0	3- 1-6	
	Nitrate of soda, 15 1/2 % (London)	8- 8-0	9- 0-0	9- 0- 0	9- 0-0	8-19- 0	9-12- 0	8-17- 6	9-16-8	
	Sulphate of ammonia 20.6 % (London)	5- 5-0	5- 5-0	5- 5- 0	6-13-0	7- 0-10	9-10- 2	6-15-11	9- 7-2	
B II	Bran, British (London)	6- 1-0	5-17-3	5-11- 5	6- 2-8	4-14- 7	4- 9- 6	5-14-10	4-16-4	
	Bran, middlings, imported (London)	5-16-0	5-19-3	6- 0- 5	6- 4-8	4-12- 2	4-16- 3	5-11- 9	4-11-5	
	Linseed cake, English (London)	8-15-0	8-12-9	8- 6- 5	6- 6-9	8- 5- 6	10-11- 2	8-11- 3	9-12-6	
	Cottonseed cake (London)	5-15-0	5-15-6	5- 0- 5	4-17-9	4-12- 1	4-18- 3	5- 2- 6	4-17-8	
	Palm kernel cake (Liverpool)	6- 2-0	6- 1-6	6- 2- 0	6-10-2	6- 0- 0	5-10-11	5-16-11- 2	5- 9-2	

ITALY (Prices in lire per quintal)

A I	Wheat, soft (Milan)	104.00	98.75 ¹⁾	98.60	117.35	91.25	125.10	105.65	111.90	
	Wheat, hard (Palermo)	119.00	115.00	121.00	137.00	128.00	137.00	133.00	135.00	
	Oats (Milan)	67.50	65.60 n.	70.50	75.85	67.40	75.60	73.30	74.30	
	Maize (Milan)	n. 57.00	n. 80.00	77.20	76.30	52.75	70.85	64.00	56.30	
	Rice (Milan)	155.20	171.75	159.50	155.60	102.75	152.10	135.40	125.55	
	Hemp, fibre		221.00	206.00 ⁶⁾	228.00	215.00	330.00	217.00	248.00	
	Olive oil (Bari)	485.00	485.00	500.00	525.00	602.00	541.00	543.00	580.00	
	Wine, ordinary, 11° to 13° (Bari) (hectol.)	80.00	80.00	80.00	80.00	96.00	130.00	86.00	118.00	

1) New harvest. — 2) June: 699.00. — 3) Early variety. — 4) New. — 5) Average: October, 1931 to June, 1932. — 6) June: 232.00.

GROUPS	COUNTRIES AND PRODUCTS	AVERAGE							Agricultural year	
		Sept.	August	July	April	July	July	July	1931-32	1930-31
		1932	1932	1932	1932	1931	1930	1930		

ITALY (continued)

A II	Cheese (Parmigiano-Reggiano) (Milan)	950.00	920.00	914.00	939.00	1,170.00	1,227.00	1,126.00	1,139.00
	Eggs, fresh (Milan) (per 100)	43.60	33.15	28.50	27.25	39.65	48.50	40.60	47.00
	Beef, live weight (Milan)	n.280.00	280.00	280.00	302.00	338.00	447.00	320.00	404.00
	Pork, live weight (Milan)	402.50	365.00	397.00	362.00	370.00	515.00	362.60	444.00
B I	Basic slag 16-20 % (Chiasso) 1)	1.365	1.325	1.325	1.105	1.10	1.37	1.06	1.29
	Superphosphate, mineral, 15-17 % (Genoa) 1)	1.195	1.195	1.195	1.195	1.17	1.30	1.19	1.24
	Chloride of potassium (Genoa)	65.70	62.50	65.40	69.50	75.85	81.40	72.00	80.25
	Sulphate of ammonia (Genoa)	74.50	73.75	78.50	78.60	71.40	87.70	75.40	81.75
	Copper sulphate (Genoa)	112.00	111.00	114.00	120.50	103.00	201.00	133.65	182.00
B II	Wheat bran (Genoa)	36.60	36.50	40.20	41.95	49.00	54.00	49.30	45.00
	Rice bran (Milan)	40.00	40.00	39.90	43.85	38.00	38.00	41.60	36.00
	Linseed cake (Milan)	55.25	53.50	53.60	57.50	60.00	77.00	62.00	65.00
	Groundnut cake (Milan)	54.25	52.50	52.50	53.50	52.00	64.00	55.00	55.00
	Rapeseed cake (Milan)	27.50	26.50	25.50	30.35	33.00	40.00	33.10	37.00

NETHERLANDS (Prices in guilders per quintal)

A I	Wheat (Groningen) . . . . .	...	...	n. 12.50	n. 12.50	n. 12.50	9.11	n. 12.50	6.94
	Rye (Groningen)	4.14	4.71	5.64	5.90	4.39	5.02	5.02	4.49
	Barley (Groningen)	4.98	4.94	6.42	6.45	5.25	5.48	5.80	5.00
	Oats (Groningen)	4.87	5.22	5.50	5.95	5.45	5.79	5.70	5.30
	Peas (Rotterdam)	12.50	11.46	n. q.	2) 11.20	9.81	11.00	11.40	9.40
	Flax, fibre (Rotterdam)	50.00	n. q.	46.00	3) 49.00	52.00	n. 80.00	52.55	60.80
	Potatoes (Amsterdam)	3.15	n. 3.85	4) 3.65	4.87	5) 3.87	4.38	4.91	5.03
A II	Butter (Leeuwarden) (6)	84.00	76.25	95.80	97.00	129.00	164.00	115.00	153.00
	Butter (Maastricht)	146.00	132.00	123.00	100.00	133.00	169.00	118.00	157.00
	Cheese, Gouda 45 % (Gouda)	52.80	48.00	51.80	43.11	81.35	92.93	62.88	83.09
	Cheese, Edam 40 % (Alkmaar)	43.80	40.50	41.40	43.56	73.47	82.59	56.26	74.44
	Eggs (Roermond) (per 100)	4.65	3.58	3.13	7) 2.93	5.40	5.67	4.52	6.26
	Beef, dead weight (Rotterdam)	64.00	67.00	69.00	8) 70.16	89.20	108.00	76.70	100.00
	Pork, live weight (Rotterdam)	28.00	28.50	30.00	9) 24.83	43.15	64.00	35.35	49.00
B I	Basic slag (1)	0.122	0.114	0.112	0.101	0.113	0.149	0.097	0.144
	Superphosphate 17 %	1.90	1.85	n. 1.95	2.00	2.43	2.84	2.15	2.68
	Kainit (1)	0.146	0.146	0.139	10) 0.141	0.136	0.151	0.144	0.150
	Nitrate of soda	6.39	6.59	7.15	7.65	8.15	10.28	7.82	10.48
	Sulphate of ammonia 20 1/2 %	4.50	4.38	4.25	4.12	4.63	n. 9.53	4.45	9.62
B II	Maize (Rotterdam)	3.97	3.92	3.95	11) 4.14	3.86	7.16	3.89	5.43
	Linseed cake, Dutch	6.00	6.00	6.01	6.05	7.45	9.95	6.85	9.05
	Coconut cake	6.35	6.28	6.22	6.33	7.85	8.75	6.81	7.88
	Groundnut cake	6.65	6.61	6.45	6.92	6.98	8.65	7.20	7.43

POLAND (Prices in zlotys per quintal)

A I	Wheat (Warsaw)	28.00	25.57	25.73	30.84	25.86	38.29	27.48	31.17
	Rye (Warsaw)	16.57	16.40	21.92	28.81	23.74	19.29	25.56	21.33
	Barley (Warsaw)	18.44	18.00	n. q.	24.63	22.13	26.13	24.42	25.55
	Oats (Warsaw)	16.25	17.81	23.82	25.44	24.56	22.53	24.36	24.01
A II	Butter (Warsaw)	341.00	342.00	318.00	348.00	407.00	470.00	397.00	486.00
	Beef, live weight (Warsaw)	73.00	75.00	79.00	86.67	83.00	116.00	77.55	103.00
	Pork, live weight (Warsaw)	108.00	116.00	117.00	129.00	167.00	187.00	124.30	152.00
	Eggs (Warsaw) (per 100)	8.61	6.94	7.92	7.76	9.68	12.42	10.87	14.25
B I	Superphosphate	0.62	0.62	0.62	0.50	0.77	12) 0.84	0.55	12) 0.83
	Potash salts 25 %	13.75	13.75	13.75	13.75	13.75	13.75	13.75	13.75
	Sulphate of ammonia	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
B II	Wheat bran (Warsaw)	11.20	12.50	13.45	16.46	14.75	15.50	15.62	16.52
	Rye bran (Warsaw)	8.80	9.12	13.20	16.72	13.48	11.35	15.03	14.15
	Linseed cake (Warsaw)	19.30	19.50	21.20	23.06	n. q.	n. 35.00	24.77	31.40
	Rapeseed cake (Warsaw)	15.85	16.25	17.25	17.60	17.75	n. 22.50	18.71	21.90

1) Prices per unit contained in one quintal. — 2) June: 11.25; May: 11.37; April: 11.00. — 3) June: 48.00; May: 48.50; April: 50.50. — 4) Early variety. — 5) Average August-September. — 6) See explanation page 721. — 7) June: 3.10; May: 2.91; April: 2.98. — 8) June: 71.00; May: 70.50; April: 69.00. — 9) June: 30.00; May: 22.00; April: 22.50. — 10) June: 0.132; May: 0.146; April: 0.146. — 11) June: 4.05; May: 3.90; April: 4.46. — 12) Gross price per kg.

GROUPS	COUNTRIES AND PRODUCTS	AVERAGE						Agricultural year	
		Sept.	August	July	April-	July-	July-	1931-32	1930-31
		1932	1932	1932	June 1932	Sept. 1931	Sept. 1930		

SWEDEN (Prices in Swedish crowns per quintal)

A I	Wheat	16.21	16.49	n.	18.50	18.26	18.82	18.57	17.84	19.43
	Rye	14.55	14.74	n.	16.50	16.32	16.42	15.51	16.14	16.33
	Barley	n.	11.35	n.	12.20	12.38	12.60	12.97	12.22	12.36
	Oats	n.	9.50	n.	10.45	10.35	10.69	10.76	9.31	10.40
A II	Beef, live weight (Göteborg)	35.35	34.80	34.00	45.00	45.00	57.25	38.65	52.00	
	Pork, live weight (Göteborg)	67.60	63.25	64.00	55.50	55.55	83.75	51.15	65.00	
	Butter (Malmö)	170.75	164.80	166.75	162.50	186.70	233.00	184.00	210.00	
	Eggs (Stockholm)	111.50	81.20	71.50	59.25	88.60	159.00	95.00	144.00	
B I	Superphosphate 20 %	6.45	6.45	n.	7.85	7.85	7.07	7.80	7.36	7.75
	Potash salts, 20 %	8.10	8.10	n.	7.75	7.75	7.85	8.10	7.78	7.92
	Chilisalt peter	n. q.	n. q.	n. q.	n. q.	18.35	19.04	19.04	18.65	18.59
	Calcium cyanamide	n. q.	n. q.	n. q.	n. q.	15.50	18.10	18.10	16.47	18.10
B II	Maize, La Plata	10.23	10.26	9.79	10.27	7.61	12.42	9.12	10.07	
	Wheat bran	9.51	9.64	9.42	11.25	8.48	9.20	9.88	9.55	
	Groundnut cake	16.44	16.04	15.42	15.45	12.61	14.11	14.70	13.47	
	Cottonseed cake	12.34	11.72	11.75	12.25	n.	11.80	13.74	12.25	12.80
	Soya meal	1) 15.31	1) 14.71	1) 14.09	15.45	13.23	14.48	14.25	14.08	

CZECHOSLOVAKIA (Prices in Czech. crowns per quintal)

A I	Wheat	146.00	156.00	148.50	150.85	147.00	161.00	148.00	149.00	
	Rye	102.00	123.00	135.00	140.15	148.00	93.00	145.70	108.00	
	Barley	83.00	94.50	94.50	98.35	135.00	124.00	116.50	134.00	
	Oats	79.50	92.50	97.50	103.85	140.00	107.00	119.90	118.00	
A II	Edible potatoes	29.00	32.00	44.00	24.35	61.00	62.00	34.60	42.85	
	Hops	1,545.00	525.00	505.00	502.00	517.00	1,287.00	559.00	934.00	
	Butter	2,425.00	2,200.00	2,100.00	2,342.00	2,283.00	2,217.00	2,158.00	2,179.00	
	Fresh eggs (per 100)	69.15	56.65	52.50	42.50	57.00	64.15	58.25	74.10	
B I	Beef, dead weight	800.00	700.00	775.00	775.00	950.00	942.00	844.00	981.00	
	Veal, dead weight	850.00	675.00	675.00	742.00	883.00	967.00	769.00	981.00	
	Pork, dead weight	1,125.00	950.00	1,000.00	909.00	942.00	1,200.00	914.00	1,014.00	
	Basic slag, 15 %	34.85	34.85	34.85	34.15	37.35	40.85	35.05	39.20	
B II	Superphosphate, 16 to 18 %	51.85	51.85	51.85	51.85	51.85	54.95	51.85	52.85	
	Kainit, 14 %	22.10	20.15	22.90	22.90	22.50	22.20	22.00	23.10	
	Chile saltpeter . . . . .	...	...	n. q.	149.35	157.25	163.85	149.75	165.15	
	Sulphate of ammonia, 20 ½ %	127.60	122.85	n. q.	129.10	131.50	143.00	128.20	139.65	
B II	Maize, imported	70.75	62.25	62.25	63.40	66.00	100.00	64.10	79.45	
	Wheat bran (Prague)	61.90	69.50	72.50	77.40	76.00	76.00	77.25	79.00	
	Rye bran (Prague)	62.10	71.50	74.50	79.50	78.00	68.00	79.00	75.00	
	Crushed soya (Prague)	n. q.	106.15	108.10	109.00	116.00	142.00	113.25	133.00	
	Rapeseed cake (Prague)	101.00	101.00	101.00	101.60	102.00	114.00	100.00	99.00	
	Linseed cake (Prague)	114.00	114.00	114.80	119.00	127.00	149.00	123.00	137.00	
	Groundnut cake (Prague)	108.30	111.00	114.50	115.80	123.00	145.00	122.00	125.00	

1) Quality slightly different.

THE TREND OF PRICES OF AGRICULTURAL PRODUCTS DURING THE THIRD QUARTER OF 1932

In the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries. The indices collected together have been obtained according to different methods and criteria. A detailed account of the items included in each series and the system of construction of the index-numbers may be found in the volume published especially for this purpose by the Institute, entitled "Index-numbers of prices of agricultural products and other price-indices of interest to the farmer". We refer the reader to this volume for an exact interpretation of the significance of the different series of data.

Owing to the substantial divergence which often exists in the value and significance of the data available, much care is advisable in their utilisation from an international point of view. For this reason it has been considered opportune to reproduce all the data in their original form only, without attempting formally to unite them. The latter process, by a comparison of often heterogeneous data, might easily lead to the drawing of erroneous relations and conclusions.

But in addition to the original data, and subject to the above comments, a summary table is given below.

General index-numbers of prices of agricultural products.

(Base: first quarter of 1929 = 100).

COUNTRIES	1930		1931				1932		
	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter
Germany	86.4	83.1	79.9	81.4	77.5	73.0	70.9	70.2	68.2
England and Wales .	95.1	88.9	87.5	85.4	83.8	79.2	81.2	79.2	72.0
Estonia	72.5	67.7	63.7	63.9	62.8	56.7	52.8	49.3	47.3
Finland	76.6	69.2	69.2	66.7	64.5	67.3	72.6	67.3	67.3
Hungary	61.9	59.7	60.4	62.4	64.2	66.4	57.2	62.7	61.4
Italy	75.4	69.5	63.7	65.1	61.4	62.4	64.5	65.4	60.1
Netherlands	86.4	68.9	77.1	78.2	70.7	61.1	67.9	54.6	53.6
Poland	75.0	70.9	64.0	71.4	63.4	63.3	58.7	63.7	54.4
Argentina	82.5	67.5	60.6	59.6	59.7	63.4	58.1	56.6	58.4
Canada	78.3	68.6	61.9	60.2	55.6	55.8	53.2	50.8	48.9
Unit. States Bureau of Agric. Economics	80.9	75.0	67.6	63.7	55.4	50.2	44.9	41.2	42.8
Unit. States Bureau of Labor	79.5	74.5	67.3	63.7	59.3	54.4	48.3	44.5	45.9

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER *

COUNTRIES AND CLASSIFICATIONS	Sept.	August	July	June	May	April	Sept.	Sept.	Year	
	1932	1932	1932	1932	1932	1932	1931	1930	1931	1930
GERMANY										
(Statistisches Reichsamt)										
1913 = 100.										
Foodstuffs of vegetable origin	104.2	108.6	116.6	118.3	121.2	122.4	111.7	116.7	119.3	115.3
Livestock	67.5	71.5	66.7	65.4	63.2	64.2	84.7	108.2	83.0	112.4
Livestock products	94.8	90.3	89.4	87.3	90.0	90.3	108.4	124.6	108.4	121.7
Feeding stuffs	87.1	90.5	94.2	93.8	96.1	99.7	96.8	96.8	101.9	93.2
Total agricultural products	89.0	91.0	92.5	92.1	93.4	94.7	101.1	113.5	103.8	113.1
Fertilizers 1)	69.2	68.5	67.7	71.5	70.7	71.7	73.6	80.0	76.5	82.4
Agricultural dead stock	114.2	115.1	115.5	116.0	116.4	117.0	129.7	139.1	130.7	139.4
Finished manufactures (= Gebrauchs- güter)	117.1	111.3	116.0	117.3	118.8	119.9	137.8	156.7	140.1	159.3
General index-number	95.1	95.4	95.9	96.2	97.2	98.4	108.6	122.8	110.9	124.6
ENGLAND AND WALES										
(Ministry of Agriculture)										
Average of corresponding months										
1911-13 = 100.										
Agricultural products	104	105	106	111	115	117	120	142	120	134
Feeding stuffs	92	97	94	94	97	99	76	90	83	96
Fertilizers	87	89	89	91	91	91	88	99	96	101
General index-number 2)	94.6	94.9	92.8	90.6	94.4	97.0	94.9	106.8	96.5	114.1
ARGENTINA 3)										
(Banco de la Nación Argentina)										
1926 = 100.										
Cereals and linseed	64.1	62.9	60.4	59.8	59.9	61.3	52.7	77.9	55.8	82.3
Meat	68.3	70.1	71.5	73.7	74.5	73.8	100.0	114.7	94.3	109.2
Hides and skins	61.7	52.8	47.7	40.4	40.6	47.8	53.4	70.6	64.5	71.6
Wool	48.0	43.1	43.0	39.6	41.1	46.1	54.3	64.9	61.2	67.4
Dairy products	56.2	57.3	57.3	57.3	58.4	58.7	75.8	80.3	74.5	82.4
Forest products	62.5	61.6	63.3	66.3	66.3	66.3	89.5	107.7	99.3	107.9
Total agricultural products	62.7	61.1	59.2	58.3	58.6	60.4	61.3	82.9	63.8	85.9
CANADA 3)										
(Internal Trade Branch										
of the Dominion Bureau of Statistics)										
1926 = 100.										
Field products (grain, etc.)	38.9	41.7	41.8	40.6	44.6	44.5	41.1	58.2	44.6	70.0
Animals and animal products	60.2	59.3	58.3	59.3	58.7	62.1	72.5	92.9	77.6	102.9
Total Canadian farm products	46.9	48.3	48.0	47.6	49.9	51.1	52.8	71.2	57.0	82.3
Fertilizers	72.0	72.4	72.0	72.0	70.5	71.4	74.8	91.5	83.0	88.2
Consumer's goods (other than foodstuffs, etc)	78.9	78.6	78.5	78.6	78.7	78.3	80.1	85.7	80.5	86.8
General index-number	66.9	66.8	66.6	66.6	67.7	68.4	70.0	82.1	72.2	86.6
ESTONIA										
(Central Bureau of Statistics)										
1913 = 100.										
Commodities imported 4)	112	113	115	114	114	114	129	110	129	118
Commodities exported	57	51	53	53	56	62	75	105	76	103
Agricultural products imported and export- ed 4)	72	67	70	69	72	77	90	107	91	108

*) For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication "Index numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer" (Rome, 1930), as well as to pages 77 to 79 of the "Crop Report" of January 1932 and to page 517 of the "Crop Report" of July 1932.

1) From July 1932 new series — 2) Calculated by the "Statist", reduced to base-year 1913 = 100. — 3) Average data for the year 1931 are provisional. — 4) From January 1932 the price of rye is excluded from the calculations.

COUNTRIES AND CLASSIFICATIONS	Sept. 1932	August 1932	July 1932	June 1932	May 1932	April 1932	Sept. 1931	Sept. 1930	Year	
									1931	1930
UNITED STATES (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals	41	43	42	44	49	50	50	100	63	100
Fruits and vegetables	68	79	83	82	80	78	83	148	98	158
Meat animals	67	69	72	57	59	66	86	128	93	134
Dairy products	67	65	63	62	69	74	92	123	94	123
Poultry and poultry products	84	75	65	59	60	60	99	125	96	126
Cotton and cottonseed	57	51	41	37	42	46	47	83	63	102
Total agricultural products	59	59	57	52	56	59	72	111	80	117
Commodities purchased by farmers 1)	106	108	109	111	112	113	127	146	129	146
Agricultural wages 1)	—	—	...	—	—	94	a) 113	a) 150	116	152
UNITED STATES (Bureau of Labor) 1926 = 100.										
Grains	37.4	38.2	36.7	37.7	42.6	44.5	44.2	77.0	53.0	58.3
Livestock and poultry	51.2	52.8	54.1	46.7	44.4	49.2	61.0	88.0	63.9	89.2
Other farm products	52.1	50.8	48.4	48.2	49.6	51.2	65.4	86.4	69.2	91.1
Total farm products	49.1	49.1	47.9	45.7	46.6	49.2	60.5	85.3	64.8	88.3
Agricultural implements	84.9	84.9	84.9	84.9	84.9	85.0	94.5	94.9	94.0	95.1
Fertilizer materials	63.6	66.4	66.8	68.0	69.4	70.1	74.2	83.1	76.8	85.6
Mixed fertilizers	66.9	68.3	68.8	69.0	69.0	71.1	77.6	92.5	82.0	93.6
Cattle feed	45.9	47.4	42.2	42.1	45.9	53.4	44.4	93.6	62.7	99.7
Non-agricultural commodities	68.7	68.5	68.0	67.8	68.1	68.9	71.7	84.0	73.0	85.9
General index-number	65.3	65.2	64.5	63.9	64.4	65.5	69.1	84.2	71.1	86.3
FINLAND (Central Bureau of Statistics) 1926 = 100.										
Cereals	87	86	88	88	89	89	70	69	77	76
Potatoes	68	71	93	73	69	69	59	54	68	76
Fodder	65	66	67	70	72	70	52	60	63	62
Meat	61	64	65	63	63	61	59	85	64	88
Dairy products	74	71	73	68	72	74	72	88	76	84
Total agricultural products	72	72	73	71	72	73	66	78	72	82
General index-number	90	89	89	87	88	89	79	88	84	90
HUNGARY (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	80	80	87	90	90	90	80	80	—	—
General index-number	90	89	94	96	97	97	96	92	—	—
ITALY (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products	328.66	322.08	328.78	345.69	359.91	361.18	334.23	409.93	343.11	413.39
General index-number	306.70	300.06	299.93	304.22	312.54	318.79	330.33	398.30	341.57	411.04
NEW ZEALAND (Census and Statistics Office) Average 1909-13 = 100.										
Dairy produce . . . . .	...	95.5	89.4	86.5	94.9	100.3	101.5	—	98.9	120.6
Meat . . . . .	...	109.0	106.6	113.3	114.1	113.7	127.5	—	130.1	171.2
Wool . . . . .	...	57.8	55.5	58.4	56.5	61.0	61.8	—	67.9	100.3
Other pastoral produce . . . . .	...	57.9	59.0	59.9	59.0	69.6	67.5	—	76.7	124.3
All Pastoral and dairy produce . . . . .	...	85.8	82.2	82.7	86.5	90.7	94.6	—	96.5	127.9
Agricultural produce . . . . .	...	83.1	84.8	105.5	111.2	113.5	101.1	—	115.5	126.7
All Pastoral, dairy and agricultural produce . . . . .	...	87.3	82.3	83.4	87.2	91.3	94.8	—	97.0	127.8

1) 1910-14 = 100. — 2) October.

COUNTRIES AND CLASSIFICATIONS	Sept. 1932	August 1932	July 1932	June 1932	May 1932	April 1932	Sept. 1931	Sept. 1930	Year	
									1931	1930
NORWAY 1)										
(Kgl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals	118	118	124	125	125	123	111	118	125	112
Potatoes	73	86	144	150	155	151	97	200	130	150
Pork	94	87	90	84	86	85	86	96	96	86
Other meat	109	115	117	108	116	113	137	203	218	138
Eggs	109	85	78	67	69	70	117	124	108	96
Dairy products	132	125	123	122	119	119	127	157	156	129
Concentrated feeding stuffs	106	107	105	104	106	104	97	122	121	102
Maize	95	94	90	87	89	87	71	114	108	82
Fertilizers	89	89	89	89	88	89	81	99	105	90
NETHERLANDS										
(Directie van den Landbouw)										
Average 1924-25 to 1928-29 = 100.										
Products of the soil	46	49	51	49	56	56	57	73	2) 58	2) 72
Animal products	51	49	52	53	47	49	64	83	2) 56	2) 77
Total agricultural products	50	49	52	52	49	51	62	81	2) 57	2) 76
Agricultural wages	83	83	83	83	83	95	95	100	2) 93	2) 99
General index-number 3)	51.4	50.7	51.4	52.8	53.5	54.1	61.6	75.8	77.8	61
POLAND 4)										
(Central Bureau Statistics)										
1917 = 100.										
Products of the soil	42.7	43.7	47.3	54.6	62.3	61.7	46.6	49.9	56.7	51
Products of agricultural industry	55.3	59.1	61.2	65.7	71.6	71.5	60.1	64.9	78.4	65.5
Total products of plant origin	48.9	51.2	54.2	60.3	67.2	66.8	53.3	57.1	66.9	60.0
Animals	43.7	45.6	45.6	46.9	52.5	49.7	59.3	79.9	81.6	55.8
Dairy products	55.8	47.7	50.8	45.9	57.9	51.4	63.3	79.0	74.9	68.0
Total products of animal origin	49.0	46.8	48.2	46.8	55.2	50.8	61.3	79.6	78.6	60.8
Total agricultural products	48.6	48.9	51.2	53.7	61.4	59.0	56.2	65.5	71.3	59.7
Fertilizers	112.9	112.9	112.9	112.9	95.1	94.1	118.5	126.2	126.3	120.2
Industrial products	69.7	69.7	67.7	68.1	69.4	70.0	76.0	91.8	94.2	79.4
General index-number	60.0	60.2	60.4	61.8	66.1	65.3	67.0	79.6	83.8	70.5
YUGOSLAVIA										
(National Bank)										
of the Kingdom of Yugoslavia)										
1926 = 100.										
Products of the soil	57.7	64.0	73.2	72.2	73.5	74.3	70.4	78.0	96.7	74.3
Animal products	56.8	53.6	57.2	55.0	53.5	53.6	70.6	95.6	97.7	72.2
Industrial products	64.0	63.4	63.4	63.4	65.0	66.2	72.2	78.2	80.2	71.4
General index-number	61.8	62.6	65.6	64.9	65.4	66.1	71.6	82.8	88.8	72.9

1) The agricultural years refer to the period April 1-March 31. — 2) Agricultural year July 1-June 30. — 3) Calculated by the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100. — 4) Average data for the year 1931 are provisional.

the preliminary estimate and partly to the fact that several countries instead of importing preferred to utilize their own stocks though these were already reduced to a low level. For the extra-European countries the difference between estimated and actual quantities is more marked, a fact that may be explained by the circumstance that some countries have had larger crops than expected, as in Egypt and the Union of South Africa, but the principal reason for the failure of wheat consumption to develop as expected has been the fall in purchasing power in the majority of these countries, which has counterbalanced the stimulating action of low wheat prices.

The increase in production and the decrease in exports as compared with expectations has prevented the forecasted large reduction in stocks taking place during the 1931-32 season. The figures of quantities remaining in the various surplus-producing countries and of quantities afloat on 1 August 1932 show,

Stocks of old crop wheat on 1 August (including flour expressed in terms of grain).

	(Million bushels)						
	1926	1927	1928	1929	1930	1931	1932
United States (1)	96	131	145	259	299	332	391
Canada (2)	40	56	91	128	127	140	136
Argentina (3)	48	49	68	102	36	60	39
Australia (3)	12	28	27	29	39	48	33
Quantity afloat	39	46	45	37	39	38	31
Totals	235	310	376	555	540	618	630

(1) Including domestic wheat in store in Canada. Stocks in the United States as estimated on 1 July have been carried forward to 1 August, the quantity exported in July being subtracted.

(2) Including domestic wheat in store in U. S. A.

(3) Quantities exportable.

on the contrary, as is indicated in the above table, a further very slight increase on the figures of 1 August 1931, which represented the highest level till then recorded. This increase of stocks in the exporting countries is however opposed by the decrease in stocks in the European countries. Unfortunately statistical data for the quantities existing in Europe at the beginning of each season are not available so that the degree of variation therein cannot be calculated even approximately. It can however be said that the reduction in European stocks has certainly been fairly considerable since several countries have reached the period of transition to the current season with minimum supplies.

It may be concluded that the 1931 crop, estimated now at 3,671 million bushels, with the help of exports from the U. S. S. R. (68 millions) was approximately adequate to meet world consumption in 1931-32 and that in consequence the

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Lithuania, Poland, Sweden and Switzerland: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

WORLD WHEAT SUPPLY AND REQUIREMENTS

Before examining the prospects for the 1932-33 season just begun it would seem opportune to pass under review the results of the 1931-32 season ended on 31 July last.

World production of wheat (1) in 1931 was forecasted as distinctly inferior to that of preceding years and insufficient to cover needs for consumption. Preliminary estimates of the crop available in October 1931 indicated a decrease of 180 million bushels with respect to 1930 and 40 million with respect to the average of the five years ending 1929. The final data now available for almost all producing countries show that the October figure was about 40 million bushels underestimated for the European countries, 60 million for North America and 40 million for the other continents. Thus the 1931 production was not so small as expected; it was only 50 millions less than that of 1930, a year of large crop and exceeded the average by about 100 millions.

For the U. S. S. R., in the absence of official estimates, which are still lacking, the 1931 crop was considered to have been less satisfactory than that of 1930 and this has proved the case, Russian exports in 1931-32 having decreased by about 40 % with respect to the previous season.

As regards international trade in wheat in 1931-32 it was estimated that demand from importing countries would be 880 million bushels. This quantity was not attained since European imports, which had been estimated at 640 million bushels and later at 625 millions, were actually only 600 millions and the imports into extra-European countries, calculated at 240 to 260 millions, were only 204 millions. For Europe the difference between expected requirements and actual imports is due partly to the fact that production was above

(1) World production i. e., excluding that of the U. S. S. R., China, Persia and Turkey and Iraq, for which no exact or recent data are available.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Lithuania, Poland, Sweden and Switzerland: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

WORLD CEREAL PRODUCTION

The estimates received by the Institute during November, which complete and revise those possessed last month, permit a more exact calculation of cereal production this year.

Wheat: The slight revision of the estimates for Estonia, Finland and Hungary bring no change in total European production which remains at 1,514 million bushels, the approximate figure calculated in October. In North America, Canada has lowered the wheat production estimate by 36 million bushels due to the discovery after threshing of considerable kernel damage as a result of drought during the last stage of maturity. In North Africa, Algeria has also remarkably reduced its production figure from 33 to 30 million bushels.

As regards the southern hemisphere where harvesting has already begun, crop news is quite favourable. Australia has not changed its production estimate of 200 million bushels but on November 16 cabled to the Institute that a very large production was in prospect and that damage was slight.

Argentina has not yet published its first forecast of production but news on crop growth has continued to be good and private estimates place production at 260-280 million bushels whereas our calculation of last month gave a figure of 230. Although this information induces the forecast of some increase in the estimates of the two countries of the southern hemisphere, it seems opportune to postpone modification until next month, when official estimates will be available.

Taking account, therefore, only of the revisions communicated by the governments, world wheat production (excluding the U.S.S.R., China, Turkey, etc.) will be about 40 million bushels smaller than that calculated last month and about the same as in 1931.

As the reductions indicated above refer to the production of two exporting countries, it follows that the world exportable supplies, which were calculated last month at 1,300 million bushels, should now be reduced to 1,260 and that the stocks remaining in the exporting countries, instead of increasing during the

World wheat production (1).

	(Million bushels)						
	1932	1931	1930	1929	1928	1927	1926
Europe	1,514	1,433	1,363	1,453	1,411	1,275	1,216
North America	1,151	(2) 1,235	1,290	1,128	1,492	1,371	1,249
South America	276	268	272	220	400	338	272
Asia (1)	397	408	458	382	342	393	382
Africa	129	132	118	135	118	118	110
Oceania	206	195	220	136	169	128	169
Totals	3,673	3,671	3,721	3,454	3,932	3,623	3,398
U. S. S. R. . . . .	..	..	988	698	808	797	915

	(Million centals)						
	1932	1931	1930	1929	1928	1927	1926
Europe	908	860	818	871	847	765	730
North America	690	(2) 741	774	677	895	822	750
South America	165	161	163	132	240	203	163
Asia (1)	238	245	273	229	205	236	229
Africa	77	79	71	82	71	71	66
Oceania	123	117	132	82	101	77	101
Totals	2,201	2,203	2,231	2,073	2,359	2,174	2,039
U. S. S. R. . . . .	..	..	593	417	485	478	549

(1) Excluding China, Persia, Turkey and Iraq.

(2) Total obtained taking account of the underestimation by about 18 million bushels (11 million centals) of the production of Canada.

season 1932-33 by 100 millions from 570 to 670 in the period 1 August 1932 to 31 July 1933, will be increased by only 60 millions, giving a round figure for the end of season stocks of 630 millions.

These calculations are based on the maintenance of the probable estimate of the requirements of the importing countries which the Institute forecast last month at 440 million bushels for Europe and 190 for the extra-European countries. It is too early to say whether this forecast should be modified considerably as official export figures are at present known only for two months, and are inadequate to give a fairly reliable idea of the situation. In any case, the quantity of world exports in the first two months of the current season — 41 million bushels in August and 48 in September, giving a total of 89 — already reveals the large contraction of world trade in wheat compared with last year, when it amounted to 66 million bushels in August and 77 in September, a total of 143 out of the total exports for the whole season of 800.

The winter sowings were effected under nearly normal conditions in most of the European countries ; in several areas of eastern Europe, however, some delay

was caused by drought during October, which hindered work and retarded the germination of the early sowings on dry land. The rains which fell at the beginning of November greatly improved the situation in these areas. It is not possible at present to obtain numerical estimates of the areas sown this autumn in Europe ; the impression is obtained however, that the area now sown is in general at least equal to that of last year and, in some countries, even considerably larger.

In the U.S.S.R., the statistics of sowings accomplished up to November 5 show that the increase in the wheat area expected on the basis of the plan, will not be realised and it seems, on the contrary, probable that the area sown will not quite reach that of last year, owing to numerous adversities, among which should be mentioned the scarcity of rain during October in the large producing areas of the South.

In North America, several important regions sown to winter wheat have suffered from drought since the beginning of the autumn and at mid-November the situation had only improved in places. The same conditions were experienced in the autumn of last year and the winter wheat crop in the United States, although reduced also by other adversities, was one of the worst of recent years. It seems probable that the area sown is a little smaller than that of last year.

In Canada, the winter wheat sowings which, as is well known, are only of small importance, have on the contrary increased by about 10 % compared with 1931. The increase in absolute figures is negligible, but the fact seems worthy of mention.

In North Africa, some delay to sowings is reported in places due to the drought; a similar situation exists in several areas of India.

Rye : The estimates available now comprise nearly all of the producing countries of the northern hemisphere except the U.S.S.R. The production of the southern hemisphere is negligible, reaching a total of only about 10 million bushels.

Production of Rye.

COUNTRIES	1932	1931	1930	1929	1928	1927	1926	1925
	(Million centals)							
Europe (23 countries)	523	430	511	520	500	450	419	529
North America (2 countries)	29	22	37	26	29	37	24	29
TOTALS . . .	552	452	548	546	529	487	443	558
	(Million bushels)							
Europe (23 countries)	935	768	913	929	894	803	748	945
North America (2 countries)	52	38	67	47	51	67	43	51
TOTALS . . .	987	806	980	976	945	870	791	996

All of the European countries, particularly the largest producers, announce heavy crops so that 1932 is one of the best years since the war. This result is due exclusively to the very satisfactory yields per acre obtained as a result of the favourable course of the season ; the areas sown have, on the contrary, again been reduced, though slightly. The European production exceeds that of 1931 by 167 mil-

* *St. ix Engl.*

lion bushels, that is, by over one fifth and the average of 1926-30 by 78 millions or 10 %. In North America also a considerable recovery is noted after the lowest level reached, last year, since 1912. Official estimates of production in the U. S. S. R. are lacking but it does not seem to have been very large due to both the reduction of about $2\frac{1}{2}$ million acres in the area sown and to the not altogether favourable course of the season.

Barley. — Estimates are at present available of production in all of the principal producing countries of the northern hemisphere except the U. S. S. R., India, Turkey and Denmark.

Production of Barley.

COUNTRIES	1932	1931	1930	1929	1928	1927	1926	1925
	(Million centals)							
Europe (25 countries)	357	306	337	368	326	293	302	300
North America (2 countries)	190	127	212	183	225	163	126	134
Asia (3 countries)	65	64	64	68	62	64	64	66
Africa (5 countries)	46	50	44	53	53	44	37	53
TOTALS	658	547	657	672	666	564	529	553
	(Million bushels)							
Europe (25 countries)	744	636	703	767	680	611	629	625
North America (2 countries)	396	266	441	381	468	340	262	280
Asia (3 countries)	135	133	133	142	129	133	133	138
Africa (5 countries)	95	105	92	110	110	92	78	110
TOTALS	1,371	1,140	1,369	1,400	1,387	1,176	1,102	1,153

The barley production of Europe despite the slightly smaller area than last year, is one of the best obtained in recent years, exceeding that of 1931 by one-sixth and the average of 1926-30 by 10 %.

Nearly all the European countries have obtained abundant crops but it is particularly the most important exporting countries such as Rumania, Hungary and Czechoslovakia which have harvested the best crops in comparison with those of 1931. The large increase in the Spanish production is also noteworthy.

In North America, though the November estimate for Canada is lower than preceding forecasts, production is much larger than the poor one of last year and also above the average.

In North Africa and Asia the known figure of production differs only slightly from the average.

The U. S. S. R. production, of which estimates are lacking, does not seem to have been abundant as the area under the crop has continued to decrease and yields of spring crops have not been satisfactory owing to the drought.

On the whole, the data at present known for the northern hemisphere indicate an increase in barley production of 231 million bushels of 48 lb. that is, of 20 % on 1931 and 79 million or 5 % on the average.

Oats. — Data are available for almost all producing countries of the northern hemisphere excluding the U. S. S. R.

Production of Oats.

COUNTRIES	1932	1931	1930	1929	19 8	1927	1926	1925
	(Million centals)							
Europe (24 countries)	539	492	489	597	542	505	529	489
North America (2 countries)	539	467	553	454	575	498	496	589
Asia and Africa (4 countries)	4	4	7	7	7	4	4	7
TOTALS	1,082	963	1,049	1,058	1,124	1,007	1,029	1,085
	(Million bushels)							
Europe (24 countries)	1,683	1,537	1,529	1,867	1,695	1,578	1,653	1,529
North America (2 countries)	1,685	1,461	1,729	1,419	1,798	1,557	1,550	1,839
Asia and Africa (4 countries)	12	13	21	21	21	14	14	21
TOTALS	3,380	3,011	3,279	3,307	3,514	3,149	3,217	3,389

Europe has obtained a crop slightly above the average and considerably larger than that of last year (by about 146 million bushels) despite the reduction in the area devoted to the crop.

Though Canada has recently reduced the preliminary estimate by almost 30 million bushels North America still records a very large crop not only in relation to 1931, which was a year of poor production, but also in relation to the average, which is exceeded by about 74 million bushels. For similar reasons to those indicated for barley the crop in the U. S. S. R. does not seem to have been a large one.

On the whole the oats production of the northern hemisphere, excluding the U. S. S. R., is one of the largest of recent years, exceeding the poor crop of 1931 by 369 million bushels or one-eighth and the average by 85 million bushels.

* * *

Summing up the crop information by continent it may be said that Europe has obtained for each of the cereals a production greatly exceeding not only that of last year, which, save for wheat, was a year of poor crops, but also the mean. The largest production has been obtained for the two bread cereals, wheat and rye. North America has had wheat and rye crops less than the mean while for barley and oats the results have been larger. In Asia the wheat crop has been less than that of last year but rather exceeds the mean ; for barley the incomplete data indicate a crop near the mean. In Africa the production of wheat and of barley does not differ sensibly from that of last year and the mean. On the whole the cereal crop of the northern hemisphere, the U. S. S. R. excluded, is one of the largest of recent years.

G. CAPONE.

CEREALS

Germany : Field work was generally favoured by the fine weather which predominated during October, particularly in the first half of the month ; during the latter half precipitation frequently hindered work. The sowings effected early have come up well. In places slugs have damaged the rye crop.

The condition of the sowings which came up at the beginning of November, compared with the same period of 1931 is as follows: wheat, 2.5 (2.7) ; rye, 2.6 (2.7) ; barley, 2.5 (2.6) and spelt, 2.5 (2.8).

Austria : Exceptionally mild sunny weather was experienced almost throughout the first half of October. Toward the middle of the month a fall in temperature was accompanied by general and abundant precipitation. The weather did not however entirely lose its mild character during the latter half of the month. Frosts were recorded only in some high-lying areas.

Preparations for sowings of winter cereals were accelerated by the rains and were very advanced by the end of October. By that time sowings of winter wheat were beginning to show themselves regularly. The rains of the second half of October were very favourable to sowings of rye and of winter barley.

On 1 November crop condition of winter cereals was as follows: wheat 2.4 (against 2.6 on 1 November 1931) ; rye 2.2 (2.5) and barley 2.2 (2.5).

Belgium : Apart from some fine days at the beginning of the month, October was characterized by continual and very heavy rains that made the land inaccessible and caused floods.

The bad weather checked work in the fields and sowings of autumn cereals had scarcely commenced.

Spain : The winter cereal sowings have been effected under very good conditions ; germination is regular and vigorous ; in some places, however, the sowings are rather backward ; it is probable that this delay will be compensated for by the good state of growth.

Irish Free State : Weather in the second half of October was unsettled with some heavy showers but otherwise weather and soil conditions were satisfactory. Cereals were harvested in good condition, yields in every case being well up to average and the grain good and sound. Damage from pests and disease was less than usual. Fair headway was made with cultivation of land for winter sowings and in some cases sowings were actually made under fairly satisfactory conditions.

France : October was generally mild and rainy. In most regions field work and sowing were favoured ; the sowings are rather forward in the centre and those effected first are generally coming up satisfactorily. In the West, Southwest and extreme North, frequent heavy rains have delayed sowing ; in the Southwest only the oat sowings were fairly well forward at the end of October and the crop had come up fairly satisfactorily.

Drier weather set in during the first few days of November in all regions and it was expected that delay, where it existed, could be made up for.

According to private information, it seems that the area sown this autumn is as large as that of last year and in some places an increase is reported.

The buckwheat crop has been poor in the two principal producing areas, Brittany and Limousin.

Cereals.

COUNTRIES	†) AREA					†) PRODUCTION							
	1932	1931	Average	%	Aver.	1932	1931	Average	1932	1931	Average	%	Aver.
	1932/33	1931/32	1926 to 1930	1932/33		1932/33	1931/32	1926/27 to 1930/31	1932/33	1931/32	1926/27 to 1930/31	1932/33	
	1,000 acres					1,000 centals			1,000 bushels				
			1931/1932 = 100									1931/1932 = 100	
WHEAT.													
Germany	5,634	5,356	4,181	105.2	134.8	111,750	93,329	74,380	186,247	155,545	123,964	119.7	150.2
Austria	536	517	508	103.7	105.5	7,804	6,605	6,946	13,007	11,009	11,576	118.2	112.4
Belgium	391	381	384	102.4	101.7	9,060	8,291	8,731	15,099	13,817	14,551	109.3	103.8
Bulgaria	3,077	2,964	2,754	103.8	111.7	30,332	36,718	26,200	50,553	61,195	43,666	82.6	115.8
Spain	11,189	11,245	10,786	99.5	103.7	107,102	80,657	85,802	178,499	134,426	143,001	132.8	124.8
Estonia	128	99	74	129.0	173.3	1,245	1,043	707	2,075	1,738	1,178	119.4	176.1
Finland	50	47	40	106.8	126.6	756	696	554	1,260	1,161	923	108.6	136.5
France	13,235	12,840	13,052	103.1	101.4	198,818	158,473	162,547	331,357	264,116	270,906	125.5	122.3
Engl. and Wales	1,288	1,197	1,460	107.6	88.2	24,371	21,532	28,378	40,619	35,887	47,296	113.2	85.9
*Scotland	52	50	57	104.9	92.7	1,075	1,335	1,335	1,792	2,225	2,225	100	100
*N. Ireland	3	3	5	107.8	65.0	64	112	112	106	187	187	100	100
Greece	1,496	1,300	1,300	100	100	11,685	6,737	7,152	19,474	11,228	11,920	173.4	163.4
Hungary	3,897	4,011	3,953	97.2	98.6	35,156	43,531	49,246	58,593	72,550	82,075	80.8	71.4
Italy	12,237	11,884	12,083	103.0	101.3	165,679	146,872	133,831	276,127	244,782	223,048	112.8	123.8
Latvia	255	215	151	118.8	168.7	3,051	2,033	1,607	5,084	3,388	2,679	150.1	189.8
Lithuania	514	478	401	107.4	128.1	5,615	5,004	4,372	9,359	8,340	7,287	112.2	128.4
Luxemburg	22	23	30	97.8	73.9	298	244	331	496	407	551	122.0	90.0
Malta	10	10	9	99.2	103.9	181	166	179	301	277	298	108.6	101.0
Norway	28	29	27	97.0	103.1	471	355	415	785	592	692	132.7	113.4
Netherlands	293	192	137	152.2	212.9	8,217	4,051	3,660	13,694	6,751	6,100	202.9	224.5
Poland	4,206	4,495	3,477	93.6	121.0	33,534	49,933	38,519	55,888	83,220	64,197	67.2	87.1
Portugal	1,271	1,082	1,082	100	100	10,883	7,799	6,262	18,138	12,999	10,437	139.5	173.8
Rumania	7,091	8,566	7,625	82.8	93.0	44,093	81,181	66,443	73,486	135,299	110,736	54.3	66.4
Sweden	747	683	544	109.4	137.2	15,499	10,829	10,276	25,830	18,048	17,125	143.1	150.8
Switzerland 1)	182	179	175	101.5	103.8	3,389	3,294	3,372	5,647	5,489	5,619	102.9	100.5
Czechoslovakia	2,064	2,047	1,899	100.9	108.7	32,242	24,739	29,058	53,736	41,232	48,428	130.3	111.0
Yugoslavia	5,243	5,395	4,899	97.2	107.0	38,887	59,274	48,794	64,810	98,789	81,322	65.6	79.7
Total Europe	\$) 75,084	75,620	71,031	99.3	105.7	900,118	853,386	797,762	1,500,164	1,442,285	1,329,575	105.5	112.8
*U. S. S. R.	85,940	92,074	74,445	93.3	115.4	...	...	504,153	...	...	840,238	...	...
Canada	27,175	26,115	23,926	104.1	113.6	258,720	182,486	261,452	431,200	304,144	435,744	141.8	99.0
United States (w)	33,245	41,363	38,202	80.4	87.0	265,073	473,677	352,524	441,788	789,462	587,541	56.0	75.2
(s)	22,169	13,936	21,243	159.1	104.4	161,951	62,845	162,919	269,919	104,742	271,532	257.7	99.4
Mexico	1,066	1,501	1,278	71.1	83.4	5,353	9,736	6,724	8,921	16,226	11,207	55.0	79.6
Total North Amer.	83,655	82,915	84,649	100.9	98.8	691,097	728,744	783,619	1,151,828	1,214,574	1,306,024	94.8	88.2
Korea . . . . .	...	...	882	...	...	4,983	5,904	5,422	8,305	8,340	9,037	99.6	91.6
India	33,749	32,189	31,485	104.8	107.2	202,182	208,432	199,203	336,971	347,387	332,005	97.0	101.5
Japan	1,245	1,228	1,185	101.4	105.1	19,520	18,536	17,819	32,533	30,892	29,699	105.3	109.5
Syria and Leban.	1,191	1,167	1,118	102.0	106.5	7,165	8,252	8,383	11,942	13,753	13,971	86.8	85.5
Total Asia	\$) 37,067	\$) 35,466	34,670	104.5	106.9	233,850	240,224	230,827	389,751	400,372	384,712	97.3	101.3
Algeria	3,695	3,640	3,738	101.5	98.8	17,990	15,390	17,755	29,982	25,649	29,592	116.9	101.3
Egypt	1,762	1,649	1,583	106.8	111.3	31,552	27,644	24,460	52,586	46,072	40,766	114.1	129.0
Eritrea	15	22	23	66.7	65.8	93	18	44	154	29	73	...	...
*Kenya 2)	38	43	67	88.0	56.4	...	174	404	...	290	674	...	...
French Morocco	2,450	2,537	2,699	96.6	90.8	13,179	17,870	16,553	21,965	29,783	27,588	73.7	79.6
Tunis	2,100	1,977	1,774	106.2	118.4	8,819	8,378	6,905	14,697	13,962	11,508	105.3	127.7
Total Africa	10,022	9,825	9,817	102.0	102.1	71,633	69,300	65,717	119,384	115,495	109,527	103.4	109.0
*Argentina	\$) 19,791	\$) 17,295	20,901	114.4	94.7	...	135,556	150,156	...	225,922	251,255	...	...
*Chili	1,570	1,517	1,635	103.5	96.1	...	12,712	16,597	...	21,187	27,661	...	...
Australia	15,585	14,500	14,387	107.5	108.3	120,000	113,792	93,450	200,000	189,653	155,748	105.5	128.4
GRAND TOTALS	\$) 221,413	\$) 218,326	214,554	101.4	103.2	2,016,698	2,005,446	1,971,375	3,361,127	3,342,379	3,285,586	100.6	102.3
RYE.													
Germany	10,996	10,788	11,616	101.9	94.7	184,819	147,269	165,770	330,034	262,982	296,018	125.5	111.5
Austria	944	934	942	101.1	100.3	13,358	10,601	11,143	23,853	18,931	19,898	126.0	119.9
Belgium	573	553	569	103.6	100.7	11,244	11,470	11,862	20,078	20,483	21,182	98.0	94.8
Bulgaria	544	597	521	91.1	104.3	5,676	6,760	4,716	10,136	12,072	8,422	84.0	120.3
Spain	1,517	1,516	1,658	100.1	91.5	13,317	11,817	12,420	23,780	21,103	22,179	112.7	107.2
Estonia	364	356	351	102.2	103.5	3,700	3,259	3,515	6,606	5,802	6,277	113.5	105.3
Finland	544	554	540	98.2	100.7	7,639	6,604	6,663	13,641	11,792	11,898	115.7	114.7

** St. 11 Incl.

COUNTRIES	†) AREA					†) PRODUCTION									
	1932	1931	Average	% 1932	Aver.	1932	1931	Average	1932	1931	Average	% 1932	Aver.	1931/1932 = 100	
	1932/33	1931/32	to 1930	1932/33		1932/33	1931/32	to 1930	1932/33	1931/32	to 1930	1932/33			
			to 1930/31	1931/1932				to 1930/31			to 1930/31	1931/1932			
	1,000 acres					1,000 centals					1,000 bushels				
France	1,755	1,760	1,899	99.7	92.4	19,705	16,530	18,253	35,188	29,519	32,594	119.2	108.0		
Greece . . . . .	...	172	131	—	—	777	1,008	898	1,378	1,800	1,603	76.6	85.9	
Hungary	1,574	1,486	1,631	105.9	96.5	18,035	12,136	16,374	32,206	21,672	29,240	148.6	110.1		
Italy	294	304	305	96.6	96.2	3,584	3,652	3,584	6,400	6,521	6,401	98.1	100.0		
Latvia	593	572	628	103.7	94.5	6,622	3,144	5,448	11,825	5,615	9,729	210.6	121.5		
Lithuania	1,195	1,257	1,164	95.0	102.7	11,655	9,118	11,307	20,808	16,282	20,192	127.8	103.1		
Luxemburg	17	16	18	108.1	97.1	231	188	219	413	336	391	123.1	105.7		
Norway	16	15	20	107.0	79.8	295	212	318	527	378	569	139.4	92.7		
Netherlands	407	445	485	91.6	84.1	7,650	7,933	8,698	13,660	14,167	15,532	96.4	88.0		
Poland	13,834	14,263	14,078	97.0	98.3	141,343	125,722	137,337	252,399	224,504	245,246	112.4	102.9		
Portugal . . . . .	...	427	407	—	—	3,590	2,899	2,446	6,411	5,070	4,369	126.4	146.7	
Rumania	859	1,006	779	85.4	110.2	7,275	7,819	7,123	12,992	13,962	12,721	95.0	102.1		
Sweden	514	511	686	100.5	74.9	9,722	6,577	9,925	17,362	11,745	17,723	147.8	98.0		
Switzerland	45	46	49	95.5	92.3	833	785	894	1,488	1,402	1,597	106.2	95.2		
Czechoslovakia	2,569	2,470	2,584	104.0	99.4	47,970	30,593	36,765	85,661	54,631	65,651	156.8	130.5		
Yugoslavia	615	625	557	98.4	110.5	4,527	4,264	4,144	8,084	7,614	7,399	106.2	109.2		
Total Europe	\$) 40,368	40,673	41,618	99.3	97.0	523,560	430,300	479,822	934,930	768,401	856,831	121.7	109.1		
*U. S. S. R.	65,731	68,380	65,482	96.1	100.4	...	...	492,031	...	...	878,629	...	...
Canada	773	778	955	99.4	80.9	5,565	2,980	8,685	9,937	5,322	15,509	186.7	64.1		
United States	3,324	3,127	3,312	106.3	100.4	23,774	18,208	22,692	42,453	32,514	40,522	130.6	104.8		
Total North Amer.	4,097	3,905	4,267	104.9	96.0	29,339	21,188	31,377	52,390	37,836	56,031	138.5	93.5		
Algeria	4	3	4	119.9	109.6	31	20	28	55	37	49	150.7	111.7		
*French Morocco	2	2	2	94.8	105.3	...	8	11	...	14	19	...	...
*Argentina	s) 1,624	s) 1,378	s) 1,065	117.8	152.4	...	5,456	3,329	...	9,744	5,945	...	...
*Chili	7	7	8	104.3	92.1	...	46	71	...	82	127	...	...
GRAND TOTALS	\$) 44,469	44,581	45,889	99.8	96.9	552,930	451,508	511,227	987,375	806,274	912,911	122.5	108.2		

BARLEY.

Germany	3,875	4,001	3,733	96.8	103.8	71,020	66,540	64,324	147,961	138,627	134,011	106.7	110.4
Austria	428	416	387	103.0	110.6	6,654	4,775	5,531	13,862	9,948	11,523	139.3	120.3
Belgium	89	70	78	126.9	114.2	2,068	1,705	1,862	4,308	3,552	3,879	121.3	111.1
Bulgaria	568	607	591	93.6	96.2	6,769	7,949	6,607	14,102	16,560	13,765	85.2	102.5
Spain	4,837	4,644	4,481	104.2	107.9	61,087	43,548	45,265	127,267	90,727	94,304	140.3	135.0
Estonia	266	279	283	95.4	93.9	1,991	2,840	2,512	4,147	5,918	5,233	70.1	79.3
*Irish Free State	103	116	125	89.0	82.4	—	2,362	2,939	—	4,921	6,122	—	—
Finland	300	276	276	109.1	108.8	3,847	3,086	3,220	8,015	6,430	6,708	124.6	119.5
France	1,859	1,865	1,721	99.7	108.0	25,766	22,911	23,904	53,680	47,732	49,801	112.5	107.8
Engl. and Wales	963	1,029	1,104	93.6	87.2	16,710	17,294	20,300	34,813	36,029	42,293	96.6	82.3
*Scotland	70	88	112	79.6	62.6	—	1,658	2,249	—	3,453	4,685	—	—
Greece	—	550	472	—	—	5,512	3,430	3,333	11,483	7,146	6,945	160.7	165.3
Hungary	1,165	1,165	1,077	100.0	108.2	15,599	10,496	13,327	32,498	21,867	27,765	148.6	117.0
Italy	530	538	579	98.6	91.6	5,538	5,310	5,257	11,537	11,062	10,953	104.3	105.3
Latvia	457	451	436	101.4	104.8	4,173	4,228	3,462	8,694	8,809	7,213	98.7	120.5
Lithuania	495	474	499	104.4	99.2	4,883	5,205	4,796	10,173	10,845	9,992	93.8	101.8
Luxembourg	10	11	9	89.9	114.1	132	128	115	276	266	240	103.6	115.0
Malta †)	6	7	7	90.3	94.0	129	137	141	269	285	294	94.4	91.8
Norway	137	138	142	98.9	96.6	2,677	2,019	2,341	5,578	4,207	4,877	132.6	114.4
Netherlands	50	71	71	70.3	70.0	1,301	1,572	1,960	2,710	3,274	4,084	82.8	66.4
Poland	3,142	3,144	2,905	99.9	108.2	33,891	32,534	31,486	70,607	67,781	65,598	104.2	107.6
Portugal	—	170	175	—	—	1,151	972	885	2,398	2,025	1,845	118.4	130.0
Rumania	4,411	4,742	4,494	93.0	98.1	39,463	31,182	42,194	82,216	64,964	87,906	126.6	93.5
Sweden	292	311	333	94.0	87.7	4,850	5,143	5,394	10,105	10,716	11,237	94.3	89.9
Switzerland	17	18	16	98.6	107.7	287	271	263	597	565	549	105.7	108.9
Czechoslovakia	1,759	1,775	1,753	99.1	100.3	33,177	23,691	28,347	69,121	49,357	59,057	140.0	117.0
Yugoslavia	1,040	1,117	1,022	93.0	101.7	8,527	8,640	8,383	17,765	18,000	17,464	98.7	101.7
Total Europe	\$) 27,416	27,869	26,644	98.4	102.9	357,202	305,606	325,209	744,182	636,692	677,536	116.9	109.8
*U. S. S. R.	16,329	16,854	18,169	96.9	89.9	—	—	130,089	—	—	271,024	—	—
Canada	3,742	3,768	4,704	99.3	79.6	39,831	32,344	54,795	82,981	67,383	114,158	123.1	72.7
United States	13,895	11,428	11,231	121.1	123.7	150,435	95,129	126,785	313,407	198,185	264,139	158.1	118.7
Total North Amer.	17,637	15,196	15,935	116.0	110.7	190,266	127,473	181,580	396,388	265,568	378,297	149.3	104.8

COUNTRIES	†) AREA					†) PRODUCTION							
	1932	1931	Average	% 1932		1932	1931	Average	1932	1931	Average	% 1932	
	1932/33	1931/32	1926 to 1930	1932/33		1932/33	1931/32	1926 to 1930	1932/33	1931/32	1926 to 1930	1932/33	
			1926/27 to 1930/31	1931/1932	Aver.			1926/27 to 1930/31			1926/27 to 1930/31	1931/1932	Aver.
	1,000 acres					1,000 centals				1,000 bushels			
Korea	2,206	2,191	2,252	100.7	98.0	21,161	20,093	17,617	44,086	41,862	36,702	105.3	120.1
Japan	1,916	2,097	2,265	91.3	84.6	38,426	36,730	38,870	80,055	76,522	80,980	104.6	98.9
Syria and Lebanon	810	818	746	99.0	108.6	5,084	6,812	8,299	10,592	14,193	17,291	74.6	61.3
Total Asia	4,932	5,106	5,263	96.6	93.7	64,671	63,635	64,786	134,733	132,577	134,973	101.6	99.8
Algeria	3,279	3,178	3,505	103.2	93.6	13,966	12,993	16,886	29,097	27,069	35,181	107.5	82.7
Egypt	366	306	364	119.6	100.4	5,792	4,653	5,379	12,067	9,694	11,206	124.5	107.7
Eritrea	99	62	54	160.0	183.5	617	445	144	1,286	928	299	186.6	429.4
French Morocco	2,930	3,222	2,995	90.9	97.8	17,882	28,335	21,933	37,254	59,032	45,695	63.1	81.5
Tunis	1,483	1,223	1,235	121.2	120.1	7,496	3,968	4,063	15,616	8,268	8,465	188.9	184.5
Total Africa	8,157	7,991	8,153	102.1	100.1	45,753	50,394	48,405	95,320	104,991	100,846	90.8	94.5
*Argentina	3) 1,520	3) 1,439	3) 1,276	105.6	119.1	...	10,620	7,668	...	22,125	15,976	...	...
*Chile	111	106	167	104.8	66.7	...	1,487	2,390	...	3,097	4,980	...	...
GRAND TOTALS	§) 58,142	56,162	55,995	103.5	103.8	657,892	547,108	619,980	1,370,623	1,139,828	1,291,652	120.2	106.1

OATS.													
Germany	8,115	8,310	8,634	97.7	94.0	147,851	136,795	144,210	462,032	427,482	450,653	108.1	102.5
Austria	784	777	759	100.9	103.4	10,020	7,321	9,645	31,312	22,874	30,141	136.9	103.9
Belgium	714	729	682	98.0	104.7	15,293	15,481	15,044	47,790	48,387	47,013	98.8	101.7
Bulgaria	281	295	335	95.3	83.9	2,489	2,754	2,327	7,777	8,605	7,272	90.4	106.9
Spain	1,926	1,986	1,902	97.0	101.3	17,165	13,335	13,333	53,639	41,670	41,664	128.7	128.7
Estonia	356	367	356	97.2	100.0	2,790	3,615	2,807	8,719	11,296	8,772	77.2	99.4
*Irish Free State	623	623	650	100.0	95.8	...	11,666	14,628	...	36,457	45,713	...	...
Finland	1,119	1,149	1,100	97.4	101.8	14,573	14,684	12,952	45,539	45,886	40,475	99.2	112.5
France	8,418	8,564	8,584	98.3	98.1	113,083	101,213	109,233	353,383	316,288	341,352	111.7	103.5
Engl. and Wales	1,577	1,652	1,802	95.5	87.5	27,373	27,774	32,032	85,540	86,793	100,098	98.6	85.5
*Scotland	866	835	893	103.8	96.9	...	13,933	15,573	...	43,540	48,664	...	...
*N. Ireland	286	286	312	100.0	91.7	...	5,065	6,312	...	15,827	19,725	...	...
Greece . . . . .	...	344	279	...	...	1,984	1,688	1,595	6,200	5,274	4,985	117.6	124.4
Hungary	575	596	665	96.5	86.4	6,243	4,278	7,753	19,510	39,368	24,227	146.0	80.5
Italy	1,113	1,146	1,255	97.1	88.6	13,378	12,629	13,112	41,805	39,467	40,974	105.9	102.0
Latvia	802	795	735	100.9	109.1	6,946	7,555	5,646	21,705	23,611	17,644	91.9	123.0
Lithuania	931	900	828	103.4	112.4	7,981	8,981	7,311	24,940	28,065	22,846	88.9	109.2
Luxembourg	74	75	72	98.9	102.9	1,124	871	984	3,514	2,721	3,076	129.1	114.2
Norway	235	237	241	99.1	97.4	4,250	3,038	4,124	13,282	9,494	12,889	139.9	103.1
Netherlands	350	369	378	94.9	92.5	6,693	6,331	7,341	20,916	19,784	22,941	105.7	91.2
Poland	5,367	5,367	5,125	100.0	104.7	52,468	50,915	52,374	163,963	159,109	163,668	103.0	100.2
Portugal . . . . .	...	422	443	...	...	2,354	2,026	1,835	7,355	6,331	5,735	116.2	128.2
Rumania	1,956	2,154	2,757	90.8	71.0	16,755	14,776	24,354	52,360	46,175	76,107	113.4	68.8
Sweden	1,577	1,590	1,729	99.1	91.2	24,802	22,326	25,867	77,506	69,767	80,835	111.1	95.9
Switzerland	41	45	50	89.7	81.4	750	739	926	2,342	2,308	2,894	101.5	81.0
Czechoslovakia	2,020	2,031	2,073	99.4	97.4	36,681	26,998	30,809	114,628	84,368	96,276	135.9	119.1
Yugoslavia	848	974	969	87.0	87.5	5,620	5,837	7,283	17,563	18,242	22,759	96.3	77.2
Total Europe	§) 39,945	40,874	41,753	97.7	95.7	538,666	491,962	532,897	1,683,320	1,537,365	1,665,296	109.5	101.1
*U. S. S. R.	35,149	42,492	43,286	82.7	81.2	...	...	342,579	...	...	1,070,551	...	...
Canada	13,157	12,871	12,971	102.2	101.4	134,258	111,615	134,725	419,556	348,795	421,014	120.3	99.7
United States	41,994	39,719	40,230	105.7	104.4	404,909	355,852	380,694	1,265,341	1,112,037	1,189,662	113.8	106.4
Total North Amer.	55,151	52,590	53,201	104.9	103.7	539,167	467,467	515,419	1,684,897	1,460,832	1,610,676	115.3	104.6
Syria and Leb.	28	27	42	102.3	66.6	299	228	287	934	711	897	131.3	104.1
Algeria	504	557	605	90.5	83.4	2,194	2,628	4,169	6,855	8,212	13,028	83.5	52.6
French Morocco	63	60	82	106.0	77.2	509	531	637	1,591	1,660	1,992	95.9	79.9
Tunis	86	67	109	129.6	79.3	617	728	780	1,929	2,274	2,429	84.8	79.1
Total Africa	653	684	796	95.7	82.3	3,320	3,887	5,586	10,375	12,146	17,449	85.4	59.4
*Argentina	3) 3,652	3) 3,470	3) 3,535	105.3	103.3	...	22,170	19,504	...	69,280	60,949	...	...
*Chile	174	166	203	104.9	86.0	...	1,575	2,171	...	4,923	6,785	...	...
GRAND TOTALS	§) 95,777	94,175	95,792	101.7	100.0	1,081,452	963,544	1,054,189	3,379,526	3,011,054	3,294,318	112.2	102.6

†) The two dates given refer to the years in which the harvest took place in the northern and southern hemispheres respectively. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production but not those of area are available. — * Countries not included in the totals. — w) Autumn crops. — s) Spring crops. — 1) Including spelt and meslin. — 2) European crops only. — 3) Area sown. — 4) Barley and meslin.

The barley and oat crops are good ; the preliminary results indicate relatively high yields and total productions exceeding those of any year since 1922 except 1929 for barley and 1929 and 1926 for oats. The crop surplus compared with both last year and the five-year average, is however about equal to the differences noted in previous years between the preliminary and final estimates ; if this year's preliminary result for barley is compared with last year's final figure, an increase is obtained, whereas a comparison with the preliminary figure of 1931 results in a slight decrease. The differential percentages calculated have therefore only a very approximate value and it can only be said that this year's barley and oat crops are a good average.

Great Britain and Northern Ireland : In the first half of October weather was wet save in Eastern England and in the latter part of the month stormy conditions with heavy rain spread over the whole area. In Scotland some oats was considerably damaged or ruined before it could be harvested. In Northern Ireland threshing continued. The wet weather, especially in the latter part of the month, made preparation of the land for autumn sowings difficult. It is anticipated that more wheat than usual will be sown this year in England and Wales.

Hungary : During the three weeks from October 5 to 25, the weather was characterised by variable temperatures rather above the average level and by nearly normal precipitation over most of the country.

Towards the end of the period mentioned, tillage for the winter cereal sowings had been nearly finished in most areas. The sowings effected early have come up uniformly and are growing well.

Italy : During October fairly good rains fell and the temperature everywhere generally remained at a normal average. During the month the sowing of wheat and minor cereals continued ; the first sowings have come up uniformly.

Lithuania : Weather in October was not favourable save at the beginning of the month ; later excessive moisture hindered preparations for winter sowings.

Luxemburg : The abundant rains in the latter half of October somewhat retarded preparations for winter sowings, which were made under average conditions.

Poland : At the end of October condition of winter cereals according to the system of the country was 3.4 for wheat, 3.6 for rye and 3.3 for barley. The corresponding figures for the same date last year were 3.2, 3.1 and 3.3.

Rumania : In the latter half of October precipitation occurred in all regions. The quantity of moisture was not, however, adequate for the normal cultivation of the soil in Bukovina, southern Bessarabia, the Danube plain and some departments of Transylvania. In the other areas soil moisture was fairly plentiful and enabled sowings to be made under normal conditions.

Early sowings have developed well. The exceptionally warm weather has favoured growth so that the crops will be in a condition to enter the winter with vigorously developed root-systems.

According to the provisional data available the area under autumn cereals up to 1 November was below that of the previous year. Taking into account, however, the fact that the weather continued to be very favourable it may be assumed that the areas sown to winter cereals up to the end of the season will be almost equal to those of last year.

As according to reports from growers, it is principally the lack of seedgrain that has slowed down sowings this year, the Government has given important financial facilities to the growers for the purchase of sound grain in quantity sufficient for sowings.

Given the fact that during the preceding season rust caused very considerable damage to cereals (one of the reasons for the poor yields this year in Rumania) the Ministry of Agriculture has organized on a large scale throughout the country from 7 to 13 November a campaign for the destruction of barberry bushes, which are very widely spread in Rumania.

In the first half of November precipitation was frequent in all provinces except in the Danube valley and Dobrudja. Work in the fields was everywhere continued under good conditions though delayed in the above-named areas which suffered from drought.

The previous partial estimates indicate a possible reduction in the area cultivated to winter cereals but according to the data now available for the whole country the situation is very satisfactory. On the one hand the favourable weather and on the other the probability of a better price for wheat have contributed to the intensification of autumn preparations.

The following are indicated as the areas sown to winter cereals up to 1 November compared with the corresponding data for the two previous years: winter wheat 3,289,000 acres against 2,108,000 up to 1 November 1931 and 2,923,000 up to 1 November 1930; winter rye 434,000 (272,000 and 417,000); winter barley 100,000 (80,000 and 161,000).

Given the fact that especially in the plain of Muntenia and in Dobrudja preparations usually continue in November, there are grounds for believing that the total area sown this year to winter cereals up to the end of the season will be about the same as the normal for recent years (6,200,000-6,900,000 acres for wheat).

Czechoslovakia: Autumn sowings were made under good conditions especially after the fairly copious rains at the beginning of October. Early-sown winter cereals are precocious, later-sown normal. Crop condition according to the system of the country was 2.4 for winter wheat and 2.3 for winter barley. Local invasions of field-mice are reported.

Yugoslavia: In the first decade of October dry, sunny and rather warm weather prevailed. Toward the middle of the month rain fell almost throughout the country and the weather became colder. During the last decade the weather was again dry and sunny though still cold. These conditions were generally favourable to work in the fields and to sowing of winter cereals.

U. S. S. R.: According to the Plan the total area to be sown to winter crops this autumn is 103,670,000 acres, of which 101,174,000 to cereals (36,103,000 acres wheat, 63,811,000 rye and 1,260,000 barley). In autumn 1931 the total area sown to winter cereals was 100,037,000 acres, 29,782,000 wheat, 69,371,000 rye and 885,000 barley.

Up to 5 November the total area sown to winter crops was 88,962,000 acres, 86.6 % of that planned. At the corresponding date in autumn 1931 there had been sown 91,841,000 acres. Further sowings may have been made before the end of the month but, judging from the areas sown after 5 November last year, this year's plan cannot be wholly realized. In Ukraina and in the Northern Caucasus sowings of rye have been extended at the expense of those of wheat; in Ukraina on 25 October 103 %

French Morocco : Preparatory work was continued in October though hindered by lack of soil moisture. Some sowings had already by mid-October dried up.

Tunis : Precipitation in October was below the average. The soil is in good condition and work preparatory to sowing has been effected under good conditions.

Union of South Africa : Further rains occurred in the Cape Southwestern districts in the latter half of September ; crops are promising. It is evident, however, that the Union wheat crop will be much smaller than the record of the previous season. The Orange Free State crop is largely a failure, but considerable areas are being sown to spring wheat despite the unsuitability of this crop in the summer rainfall areas.

Australia (Telegram of 16 November) : The weather has generally been very favourable for the wheat crop throughout the Commonwealth. A very plentiful yield is expected and the grain is heavy. Rust is reported in a small portion of the area and slight damage has been caused in Victoria by take-all.

MAIZE

Austria : At the beginning of November harvesting was almost everywhere completed. The ears are fuller than had been anticipated. Thanks to the sunny weather the stalks were also harvested under good conditions.

Crop condition at the end of October was 2.7 against 2.8 at the end of September this year and 2.6 at the end of October 1931.

Hungary : Towards the end of October the harvesting of maize had everywhere been completed. Production was very good.

Argentina : The rains in the first fortnight of October favoured the crop. In the province of Buenos Aires area sown is considered to be higher than that of last year. In the provinces of Entre-Rios and Santa Fé, consequent on locust invasion, growers have sown *maiz amargo* in preference, as it is considered less liable to locust attack. In the province of Córdoba crop condition is generally good.

United States : In the week ended on November 2 husking of corn made satisfactory progress in most sections of the country, though in the Ohio Valley and eastern States there was considerable interruption by frequent rainfall, with some complaint of mould locally. Cold and scattered snows in the northern Plains were unfavourable but in other portions of the trans-Mississippi area good progress was reported. In Iowa, high winds blew much corn off the stalks, with the possibility of heavy damage should the weather turn wet or snow fall.

Guadeloupe : Like other food crops maize covers a relatively much larger area this season.

French West Africa : The crop was normal in Dahomey but rather endangered by drought in the Ivory Coast.

Egypt : Harvesting of early sown areas of *nili* maize in Lower Egypt is in progress, and is expected to become general about the middle of November. In Upper Egypt small early crops have started to be harvested in certain provinces. The yield is expected to be 1 % above the average.

French Morocco : Harvesting was completed by the end of October.

Union of South Africa: The prolonged drought in the inland areas of the Union was largely broken by excellent rains during the latter half of September. Good rains fell in the Eastern Transvaal highveld, the principal maize area, and in the Natal highveld but the drought had not been broken by the end of the month in the northern Free State, also an important maize area, and in the western and northern Transvaal. Planting generally commences in October.

Maize.

COUNTRIES	AREA					PRODUCTION											
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932					
				1931	Average							1931	Average				
														= 100	= 100	= 100	= 100
1,000 acres					1,000 centals			1,000 bushels of 56 lbs									
Austria . .	148	152	145	97.2	102.4	2,690	2,794	2,508	4,803	4,990	4,479	96.3	107.2				
Bulgaria . .	1,829	1,676	1,693	109.1	108.0	23,246	21,983	15,239	41,511	39,256	27,212	105.7	152.5				
Spain . . .	1,082	1,053	1,044	102.8	103.7	14,775	14,778	13,215	26,384	26,389	23,598	100.0	111.8				
*France . .	782	855	843	91.5	92.8	...	13,789	9,695	...	24,623	17,312	...	...		
Hungary . .	2,877	2,720	2,652	105.8	108.5	53,701	33,459	35,897	95,894	59,749	64,102	160.5	149.6				
Italy . . { ^s	3,267	3,226	3,515	101.3	93.0	59,353	40,382	52,449	105,988	72,111	93,659	147.0	113.2				
Italy . . { ^t	363	308	225	117.6	161.1	...	2,266	2,167	...	4,046	3,870	...	...		
*Portugal . .	...	369	861	...	...	8,947	9,824	8,217	15,976	17,543	14,673	91.1	108.9	
Rumania . .	11,775	11,749	10,851	100.2	108.5	119,711	133,674	101,569	213,771	238,704	181,374	89.6	117.9				
Switzerland .	2	3	3	97.1	75.9	60	64	77	106	114	138	93.1	77.1				
Czechoslov..	331	344	347	96.2	95.6	6,819	5,020	5,272	12,176	8,965	9,415	135.8	129.3				
Yugoslavia .	6,442	6,168	5,734	104.4	112.4	95,240	70,623	65,918	170,072	126,113	117,711	134.9	144.5				
*U. S. S. R. .	9,084	9,741	8,483	93.3	107.1	...	...	69,622	...	...	124,325	...	...		
Canada . .	137	132	159	104.0	86.3	2,929	3,039	3,172	5,231	5,426	5,665	96.4	92.3				
United Stat.	108,609	105,100	99,449	103.3	109.2	1,635,760	1,435,432	1,441,334	2,921,000	2,563,271	2,573,817	114.0	113.5				
Syria a. Leb.	56	65	120	86.3	47.0	573	730	1,352	1,024	1,303	2,415	98.5	42.4				
Algeria . .	17	24	24	69.7	68.6	141	133	144	252	238	257	106.0	97.9				
Eritrea . .	7	22	16	33.3	47.6	66	240	97	118	429	174	27.5	67.9				
*Kenya 1) .	176	161	199	109.9	88.6	...	1,525	2,804	...	2,724	5,008	...	...		
It. Somali 1)	24	53	39	45.1	61.0	213	521	417	380	931	745	40.8	51.0				
Tunis 2) . .	44	45	41	99.0	108.2	121	110	109	217	197	194	110.0	111.3				
TOTALS . .	136,647	132,532	125,832	103.1	108.6	2,015,398	1,762,982	1,738,769	3,598,927	3,148,186	3,104,955	114.3	115.9				

* Countries not included in the totals. — s) Spring crop (maggengo). — t) Summer crop (cinquantino) — 1) European crop. — 2) Maize and sorghum.

RICE

Formosa: The weather has been favourable to rice of the second crop. Growth has been fairly good.

India: On October 20 rice crops in Bengal were in need of rain, especially on the high tracts, but light to moderate rain in the latter half of the month improved crop prospects. On November 2 recent excessive rain was retarding agricultural operations. During October, the crop prospects for winter rice in Bihar and Orissa were fair but lack of rain was injurious to crops in some regions; in the last week of the month however rain fell in all but two areas, one of which, Champaran, badly needed

rain. In October rainfall was heavy on the west coast of Madras and moderate in the Circars and the centre and south of the Presidency. On October 29 crop condition was fair. Rains fell on two days in the middle of the month in Lower Burma.

According to a report dated October 27 received from the Department of Commercial Intelligence and Statistics of India, the weather conditions for rice at sowing time were not quite favourable but the condition of the crop appeared to be good on the whole.

Rice.

COUNTRIES	AREA					PRODUCTION							
	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33		1932/33	1931/32	Average 1926/27 to 1930/31	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33	
				1931/ 1932	Aver- age							1931/ 1932	Aver- age
1,000 acres			= 100	= 100	1,000 centals			1,000 bushels of 45 lbs			= 100	= 100	
Bulgaria . .	13	14	18	93.4	72.8	304	290	350	675	645	777	104.5	86.8
Italy. . . .	330	356	350	92.8	94.4	13,733	14,428	14,689	30,517	32,062	32,642	95.2	93.5
United St. .	845	974	962	86.8	87.8	17,055	20,352	19,402	37,900	45,226	43,115	83.8	87.9
Korea . . .	3,824	4,104	3,922	93.2	97.5	..	63,283	62,987	..	140,625	139,967	..	..
Formosa 1).	700	677	628	103.3	111.5	15,987	14,474	12,455	35,526	32,164	27,678	110.5	128.4
India . . .	75,531	77,429	73,719	97.5	102.5	..	1,130,438	1,058,265	..	2,512,033	2,351,653	..	..
Japan . . .	7,976	7,962	7,829	100.2	101.9	239,920	220,133	242,738	533,145	489,174	539,406	109.0	98.8

1) First crop.

British Malaya: In the greater part of the Peninsula the weather during the first two weeks of September was hot and dry, while in the second part of the month showers varying in number and intensity were experienced. In Kelantan, Kedah, Penang and Province Wellesley, northern and central Perak and the coast of Malacca, cultivation and transplanting operations progressed well as soon as the water supply became sufficient. Planting in Negri Sembilan was almost completed, as also in the inland areas of Malacca and throughout Western Pahang, where there were prospects of a satisfactory crop. In Selangor, the interseason crop was being harvested and appeared on the whole to be a success, but in some localities it did not come up to earlier expectations owing to the large proportion of empty ears. This is in part accounted for by the attacks of birds and the padi-fly (*Leptocoris acuta*) but may also be due in part to other, more obscure causes. Elsewhere in Selangor the rain crop was being planted and good progress was made with the establishment of nurseries and the clearing of the timber on the new padi areas in Kuala Selangor district. In Johore, the growth of the padi was, on the whole, good, though in places it was suffering from drought. Harvesting of both wet and dry padi was commenced in some localities. Crop prospects were fair.

Siam: The area planted in 34 out of the 35 provinces of the Seven Inner Circles as at 31 August 1932, amounted to 3,522,300 acres, against 3,514,800 acres at the same time last year, showing an increase of 7,500 acres. The cultivable area in the 35 provinces was this year about 5,147,000 acres. The area planted at the end of

August was, therefore, about 68.5 % of the cultivable land. The condition of the crop was reported to be as follows: 12 provinces doing well; 10 provinces doing fairly well; 12 provinces not doing well.

French West Africa: In Guinea, thanks to administrative encouragement, rice, like other food crops, covers a larger area than usual. On the Ivory Coast insufficiency of rains has reduced yields.

Egypt: Harvesting of *sefi* rice is over in the early-sown areas and has started in the general crop. The yield is expected to be 4 % above the average. Crop condition as on 1 November: 104, against 100 as on 1 October and 94 as on 1 November 1931. Early sown crops of *nili* rice are maturing and harvesting has commenced in certain areas. The yield is expected to be 9 % above the average.

POTATOES

Austria: At the beginning of November lifting had been everywhere completed. Yields, which vary greatly, are not satisfactory. Owing to the paucity of precipitation throughout the growing period the tubers remained small.

At the end of October crop condition was 2.8 against 2.7 at the end of September this year and 2.4 at the end of October 1931.

Spain: The excessive moisture furnished by the rains in the last few weeks of the period of growth of potatoes has apparently affected keeping quality.

Irish Free State: Weather, though unsettled in the latter part of October, did not impede harvesting and the crop was saved in excellent condition, yields being somewhat above average.

France: While the crop has been satisfactory in most areas, the proportion of tubers spoilt by rot in the two most important areas, the Centre and West, is rather high owing to the rainy weather during lifting. The drier weather in the first week of November probably improved the quality of the later liftings.

Great Britain and Northern Ireland: In the earlier part of October, which was on the whole mild with moderate rain, digging of potatoes was carried out satisfactorily but in the latter part of the month heavy rains caused the crop to be wet and dirty. In Northern Ireland lifting was practically completed. Quality and size of tubers is generally up to average and disease is not very prevalent. In Northern Ireland the yield, though satisfactory, will not be as high as was anticipated earlier in the year.

Hungary: Towards the end of October the lifting of main season potatoes had been completed practically everywhere. Yields are generally below the average.

Lithuania: Due to excessive moisture 3 % of the crop has rotted.

United States: In the week ended on October 26 some potatoes were frozen in Idaho and a few other localities. Digging was nearing completion in all northern sections, though this work was delayed somewhat by the stormy weather in the Northwest.

Palestine: The early autumn-sown crops of potatoes under irrigation are progressing favourably in the northern areas. In Jaffa results are not promising. Land is being prepared for winter sowing. An increased activity in the cultivation of this crop is noted.

Algeria: It seems that the growing of early potatoes, at least on the Algerian coast, will be considerably extended this autumn. The first plantings look well.

Potatoes

COUNTRIES	AREA					PRODUCTION							
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932	
				1931	Average							1931	Average
			= 100	= 100	= 100			= 100					
1,000 acres	1,000 centals	1,000 bushels of 60 lbs											
Germany . .	7,115	6,979	6,943	101.9	102.5	999,284	967,091	864,334	1,665,440	1,611,787	1,440,527	103.3	115.6
Austria . .	511	479	459	106.7	111.3	50,235	59,895	52,508	83,723	99,823	87,512	83.9	95.7
Belgium . .	435	425	410	102.4	106.3	77,704	78,857	74,142	129,503	131,425	123,567	98.5	104.8
Bulgaria . .	37	32	28	115.4	134.3	2,134	1,720	946	3,556	2,866	1,576	124.1	225.7
*Spain . . .	...	414	337	...	...	113,118	103,110	85,576	188,526	171,846	142,623	109.7	132.2
Estonia . .	166	168	166	98.8	99.9	15,148	18,839	16,688	25,245	31,398	27,813	80.4	90.8
*Irish Free S.	348	346	363	100.6	96.0	...	43,279	53,605	...	72,132	89,341	...	...
Finland . .	192	174	173	110.5	111.1	22,168	15,997	17,419	36,945	26,661	29,030	138.6	127.3
*France . . .	3,442	3,533	3,589	97.4	95.9	...	359,350	308,759	...	598,904	514,588	...	...
Engl. a. W..	504	447	489	112.7	103.0	71,120	53,917	70,162	118,533	89,861	116,934	131.9	101.4
*Scotland . .	146	128	140	114.0	104.1	...	15,680	21,258	...	26,133	35,429	...	...
*N. Ireland .	142	134	150	105.6	94.5	...	15,635	23,567	...	26,058	39,277	...	...
Hungary . .	729	701	658	104.1	110.9	37,153	31,912	41,269	61,921	53,185	68,781	116.4	90.0
Italy . . .	1,018	1,015	870	100.3	117.0	44,093	33,136	42,804	73,486	55,226	71,339	133.1	103.0
Latvia . . .	253	247	207	102.4	122.0	25,373	25,729	18,645	42,288	42,880	31,075	98.6	136.1
*Lithuania .	427	409	347	104.4	123.0	...	43,254	33,644	...	72,089	56,072	...	...
Luxemburg .	40	41	40	96.0	99.0	5,115	4,700	3,652	8,524	7,832	6,086	108.8	140.1
Malta . . .	7	7	7	108.1	100.3	564	670	636	941	1,117	1,060	84.2	88.7
Norway . . .	123	116	120	105.9	103.0	22,399	17,071	18,150	37,330	28,451	30,249	131.2	123.4
Netherlands	434	406	428	107.1	101.5	81,130	60,322	72,753	135,215	100,535	121,253	134.5	111.5
Poland . . .	6,677	6,716	6,250	99.4	106.8	593,045	683,179	610,520	988,389	1,138,609	1,017,513	86.8	97.1
*Rumania 1).	457	474	484	96.5	94.4	...	40,789	43,463	...	67,981	72,437	...	...
Sweden . . .	337	327	354	103.1	95.2	43,872	33,020	36,508	73,119	55,033	60,846	132.9	120.2
Switzerland .	115	113	119	102.0	97.0	14,813	16,898	14,971	24,688	28,164	24,952	87.7	98.9
Czechoslov .	1,811	1,778	1,772	101.9	102.2	185,236	214,429	194,761	308,720	357,375	324,594	86.4	95.1
*U.S.S.R. . .	13,732	15,104	13,671	—	—	...	...	990,152	...	...	1,650,221	...	...
Canada . . .	536	584	562	91.8	95.4	39,249	52,305	46,352	65,415	87,175	77,252	75.0	84.7
United St. .	3,411	3,371	3,097	101.2	110.1	215,400	225,311	213,920	359,000	375,518	356,526	95.6	100.7
Syria a. Leb.	18	20	16	87.8	115.6	745	971	1,089	1,241	1,619	1,815	76.7	68.4
Algeria { e)	24	29	30	84.8	80.1	958	723	874	1,597	1,205	1,457	132.5	109.6
{ m)	28	24	25	117.1	112.2	948	949	918	1,580	1,582	1,530	99.9	103.2
TOTALS . .	24,521	24,199	23,223	101.3	105.6	2,547,886	2,597,641	2,414,021	4,246,399	4,329,327	4,023,287	98.1	105.5

* Countries not included in the totals. — e) winter, so-called early potatoes. — m) Main season crop. — 1) Unmixed crops. — 2) Area sown as on 20 June 1932.

SUGAR

In October and in the early part of November weather was not very favourable for maturing, lifting and transport of beet. Losses were not, however, heavy since in the southern areas of Europe growth and harvesting had been entirely and in Central Europe and in the northern areas largely completed. The following remarks refer only to that part of the area on which, in the early part of October lifting was still to be carried out.

In Germany, Czechoslovakia, Great Britain and parts of France overabundant rains in October accompanied by fluctuations in temperature were unfavourable to regular maturation and lowered sucrose content. Lifting and trans-

port were also difficult. In Belgium and the Netherlands the changeable and prevalently rainy weather delayed lifting and caused a slight reduction in sucrose content. In Poland, on the other hand, the rains in October, following the drought that had for a long period hindered growth, were beneficial, favouring lifting, which had been hindered by the hardened condition of the soil. In the other European countries either weather conditions brought no appreciable change in growth or lifting and transport had already been effected.

Production of Beet Sugar (raw).

COUNTRIES	TOTAL PRODUCTION DURING THE SEASON						% 1932-33	
	1932-33 1)	1931-32	Average 1926-27 to 1930-31	1932-33 1)	1931-32	Average 1926-27 to 1930-31	1931-32	Average
	thousand centals			short tons			= 100	= 100
Germany	23,141	35,160	42,889	1,157,050	1,757,960	2,144,396	66	54
Austria	3,858	3,585	2,506	193,000	179,220	125,315	108	154
Belgium	5,090	4,422	5,733	254,500	221,113	286,621	115	89
Bulgaria	521	547	843	26,060	27,373	42,131	95	62
Denmark	4,079	2,690	3,243	204,000	134,000	162,126	152	126
Spain	4,805	7,954	4,988	240,266	397,690	249,391	60	96
Irish Free State	560	125	442	28,000	6,257	22,113	447	127
Finland	146	93	76	7,300	4,633	3,803	157	191
France	19,842	18,850	20,299	990,000	942,481	1,014,934	105	98
Great Britain	7,275	5,631	5,718	360,000	281,528	285,877	129	127
Hungary	2,315	2,761	4,685	116,000	138,062	234,235	84	49
Italy	6,854	7,901	8,218	342,000	395,100	410,900	86	83
Latvia	551	243 2)	83	28,000	12,100 2)	4,134	227	667
Netherlands	4,960	3,687	6,162	248,000	184,399	308,111	134	80
Poland	9,171	10,880	15,911	459,000	543,968	795,556	84	58
Rumania	1,455	1,138	3,013	73,000	56,900	150,630	128	48
Sweden	4,877	3,166	2,728	243,800	158,304	136,399	154	179
Switzerland	139	134	148	6,900	6,700	7,424	103	93
Czechoslovakia	13,714	17,921	24,384	685,710	896,055	1,219,161	76	56
Turkey	441	353 2)	129	20,000	18,000 2)	6,444	125	342
Yugoslavia	1,604	1,903	2,272	80,223	95,132	113,615	84	71
<i>Total Europe a)</i>	<i>115,378</i>	<i>129,144</i>	<i>154,470</i>	<i>5,762,809</i>	<i>6,456,975</i>	<i>7,723,316</i>	<i>89</i>	<i>75</i>
U. S. S. R.	28,219	33,069	26,723	1,410,000	1,650,000	1,336,142	85	106
<i>Total Europe b)</i>	<i>143,597</i>	<i>162,213</i>	<i>181,193</i>	<i>7,172,809</i>	<i>8,106,975</i>	<i>9,059,458</i>	<i>89</i>	<i>79</i>
Canada	1,050	1,071	818	52,500	53,569	40,912	98	128
United States	26,494	24,882	22,916	1,325,000	1,244,000	1,145,797	106	116
<i>Total North America</i>	<i>27,544</i>	<i>25,953</i>	<i>23,734</i>	<i>1,377,500</i>	<i>1,297,569</i>	<i>1,186,709</i>	<i>106</i>	<i>116</i>
*Korea . . . . .	...	36	15	...	1,822	764	...	...
*Japan . . . . .	...	592	517	...	29,598	25,868	...	...
<i>Total Asia</i>	...	<i>628</i>	<i>532</i>	...	<i>31,420</i>	<i>26,632</i>	...	...
*Australia . . . . .	...	118	53	...	5,878	2,648	...	...
GENERAL TOTALS { a)	142,922	155,097	178,204	7,140,309	7,754,544	8,910,025	92	80
b)	171,141	188,166	204,927	8,550,309	9,404,544	10,246,167	91	84

*) Countries not included in the totals — a) Not including the U. S. S. R. — b) Including the U. S. S. R. — 1) Approximate data. — 2) Average 1927-28 to 1930-31.

In the U. S. S. R. the difficulties indicated last month in lifting and transport due to lack of equipment continued; weather was, however, fairly propitious.

In the United States lifting was almost at an end in the early part of November.

Since the general effects of the bad weather experienced in many countries were not very serious the changes communicated to the Institute since the publication of the October *Crop Report* do not substantially modify the totals based on the first estimate.

As regards probable production of cane-sugar in 1932-33 the data so far available are too rough and too few to enable a complete table to be published. In view, however, of the fact that Cuba and Java, in accordance with international agreements, are reducing production in 1932-33 by about 25 % and 50 % respectively and that other important producers such as Santo Domingo, Puerto Rico, Brazil and Australia, will have smaller outputs, the total for cane-sugar for 1932-33 will be about 90 % of the total for 1931-32.

E. R.

*The figures in the following table are supplied
by the « Association Internationale Sucrière » of Vienna.*

COUNTRIES	Sugar beet		Raw sugar	
	1932	1931	1932-33	1931-32
Thousand cents				
Germany	145,272	207,550	23,141	35,160
Austria	21,410	21,410	3,528	3,584
Belgium	38,581	29,233	5,196	4,521
Denmark	28,131	16,259	4,123	2,691
Irish Free State	3,461	768	562	123
Finland	1,102	691	146	93
Hungary	16,535	18,012	2,315	2,761
Italy	50,706	54,961	6,945	7,968
Poland	52,250	60,331	9,171	10,871
Rumania	8,819	7,275	1,372	1,057
Sweden	31,703	18,793	4,877	3,166
Czechoslovakia	78,425	97,662	13,714	17,921
Turkey	2,392	2,275	408	353
Yugoslavia	11,574	13,420	1,604	1,903
Total	490,361	548,640	77,102	92,172
Short tons				
Germany	7,263,480	10,377,370	1,157,050	1,757,960
Austria	1,070,790	1,070,470	176,385	179,180
Belgium	1,930,000	1,462,000	259,800	226,042
Denmark	1,407,000	812,900	206,000	134,530
Irish Free State	173,000	38,410	28,100	6,150
Finland	55,000	34,530	7,300	4,633
Hungary	830,000	900,598	116,000	138,060
Italy	2,500,000	2,748,000	347,000	398,400
Poland	2,610,000	3,016,523	459,000	543,556
Rumania	440,000	360,000	68,590	52,849
Sweden	1,585,000	939,629	243,800	158,304
Czechoslovakia	3,921,190	4,883,030	685,710	896,055
Turkey	119,600	113,800	20,400	18,000
Yugoslavia	579,000	671,007	80,223	95,132
Total	24,483,760	27,428,267	3,855,358	4,608,851

* * *

Austria : The lifting of sugar-beet was almost finished at the beginning of November. The bulbs are generally small. Sugar content is fairly high but the bulbs are very woody. It is reported that the foliage is generally withered and that producers will consequently lose a considerable quantity of fodder. The crop is being rapidly carted to the factories.

At the end of October, the crop condition of sugar-beet was 3.0 against 2.9 at the end of September this year and 2.7 at the end of October 1931.

Sugar beet.

COUNTRIES	AREA					PRODUCTION							
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932	
				1931	Average							1931	Average
			= 100	= 100	= 100			= 100					
1,000 acres	1,000 centals					1,000 short tons							
Germany . .	669	941	1,102	71.1	60.7	164,625	243,370	257,369	8,231	12,168	12,868	67.6	64.0
Austria . .	106	105	69	100.0	152.1	21,226	21,554	15,844	1,061	1,078	792	98.5	134.0
Belgium . .	132	128	155	102.9	85.4	33,002	32,310	39,372	1,650	1,615	1,969	102.1	83.8
Bulgaria . .	30	30	46	100.0	63.9	5,291	4,189	6,001	265	209	300	126.3	88.2
Spain . . .	202	277	166	73.0	122.2	40,190	62,969	38,361	2,009	3,148	1,918	63.8	104.8
Finland . .	6	5	5	117.3	110.9	1,036	794	834	52	40	42	130.6	124.2
*France . .	617	621	635	99.4	97.5	...	136,592	145,298	...	6,829	7,265	...	...
*Engl. a. W.	255	233	220	109.3	115.7	...	37,094	40,045	...	1,875	2,002	...	...
*Scotland . .	1	1	4	78.8	20.3	...	114	482	...	6	24	...	...
Hungary . .	113	134	172	84.0	65.5	19,366	21,301	32,654	968	1,065	1,633	90.9	59.3
Italy . . .	207	287	253	72.2	82.0	49,604	52,263	57,967	2,480	2,613	2,898	94.9	85.6
Netherlands	99	93	153	106.9	64.7	34,613	22,690	45,961	1,731	1,134	2,298	152.5	75.3
*Poland . .	...	367	517	...	...	...	60,875	96,718	...	3,044	4,836	...	...
Sweden . .	99	87	75	113.4	131.0	29,366	19,317	18,577	1,468	966	929	152.0	158.1
Switzerland.	3	3	4	109.4	96.8	1,036	838	1,056	52	42	53	123.7	98.1
Czechoslov.	361	461	637	78.2	56.6	81,098	115,541	146,730	4,055	5,777	7,336	70.2	55.3
*U.S.S.R. . .	3,123	3,401	1,868	91.8	167.2	...	...	208,073	...	...	10,404	...	...
Canada . .	45	50	48	90.0	94.4	9,000	9,081	8,736	450	454	437	90.1	103.0
United St. .	813	713	701	114.0	116.0	175,800	158,060	154,365	8,790	7,903	7,718	111.2	113.9
TOTALS . .	2,885	3,314	3,586	87.0	80.4	665,253	764,277	823,827	33,261	38,212	41,191	87.0	80.8

* Countries not included in the totals.

Belgium : The bad weather in October rather hindered lifting. Yields are, however, high though sugar content leaves much to be desired ; it is calculated that on the average yields will be 285 to 310 centals (14.3 to 15.6 sh. tons) per acre and sugar content 15-16 %.

Irish Free State : Lifting of the crop was not impeded by the rather unsettled weather of the second half of October and the beet was in excellent conditions with yields rather above average.

France : Lifting took place in October under generally satisfactory conditions though hindered latterly in the north and west by excessive rains, which made the soil conditions difficult. It continued in the first part of November under drier conditions.

Great Britain and Northern Ireland : The weather in the main beet area was mild and generally satisfactory for harvesting but the heavy rains in the latter part of the month retarded lifting in some areas and the roots when lifted were very dirty. In certain areas as much as 85 % of the crop had been lifted by the end of the month. The crop is generally described as well up to average but sugar content may be somewhat lower than anticipated.

Hungary : Towards October 25 the lifting and carting to the factories of sugar-beet was in progress in several areas.

Lithuania : Weather at the beginning of November was favourable.

Barbados : Precipitation is reported as having been adequate over the greater part of the island in September and a good crop is expected. The crop is planted in November. The total number of egg parasites of the moth borer (*Diatraea saccharalis*) liberated this year up to the end of September was over 97 million.

United States : In the week ended on November 2 harvesting of sugar-beet was well advanced or completed in many sections. Grinding of sugar cane continued in Louisiana with good result.

According to the most recent estimate production of cane-sugar in Louisiana in 1932-33 will be about 4,020,000 centals (201,000 short tons) against 3,140,000 (157,000) and 2,536,000 (126,800) on the average of the five seasons ending 1930-31. Percentages: 128.0 % and 158.0 %.

Trinidad and Tobago : Production of sugar according to the final estimate was 2,186,000 centals (109,000 short tons) in 1931-32 as against 2,208,000 (110,000) in 1930-31 and 1,688,000 (84,000), the average for the preceding five-year period. Percentages: 99.0 and 129.5.

Weather and crop prospects were good up to mid-October.

Formosa : The weather was generally favourable to the growing of the cane to be cut from this autumn to next spring and to the cane being planted. Growing and germination were good.

India : Little rain fell in the United Provinces during October apart from light precipitation in the last week of the month. Standing crops were generally in good condition. In the Punjab, October weather was dry. The condition of standing crops was average to good on irrigated areas and below the average on unirrigated. Light scattered rains fell in Bihar and Orissa in the first half of October and became more general in the latter half. Condition on October 1 was generally good.

According to a report dated October 27 received from the Government of India the weather conditions for the sugar-cane crop had been favourable except in the most important cane-growing tract, viz, the United Provinces, where insufficient rains had somewhat affected the crop. The condition of the crop elsewhere was, however, reported to be good.

The area under sugar-cane in India in the season 1932-33 is estimated, in the second report, at 2,998,000 acres or 106.4 % of 1931-32 (2,817,000 acres) and 110.8 % of the average of the preceding five seasons (2,705,000 acres).

Palestine : Heavy yields have been obtained from the irrigated crops of sugar cane. The marketing of the crop has commenced.

Egypt : Production of raw cane-sugar in 1931-32 was 3,250,000 centals (162,500 short tons) against 2,687,000 (134,300) in 1930-31 and 2,095,000 (104,800), the average of the five years ending 1929-30. Percentages: 121.0 and 155.1.

The sugar cane crop is growing satisfactorily owing to favourable weather and an adequate water supply. Early sown areas are maturing. Some areas are being cut for local consumption. Crop condition as on 1 November: 103, the same as on 1 October, against 102 as on 1 November, 1931.

Réunion : The crop was good on the windward side of the island, which received sufficient moisture during the cyclone, but was rather smaller on the leeward, where mosaic damage occurred.

Union of South Africa : The latest estimate received for sugar production in 1932-33 is 7,060,000 centals (353,000 short tons), an increase of 8.3 % on the production of 1931-32 and of 19.5 % on the average of the five years ending 1930-31.

September crop condition averaged 15 % below normal. Only light showers fell in the sugar belt. At the end of the month further rains were badly needed.

Australia : On the basis of the definitive figures for 1931-32 the production of 85,568,000 centals (4,278,000 short tons) of sugar-cane in 1932-33 is 8.9 % less than that of last season, though 4.7 % above the five-year mean.

Hawaii : According to the most recent estimate production of cane-sugar for 1932-33 will be about 19,540,000 centals (977,000 short tons) against 19,960,000 (998,000) in 1931-32 and 18,113,000 (906,000) on the average of the five seasons ending 1930-31. Percentages: 98 and 108.

VINES

The vintage was completed in the northern hemisphere in the first half of November.

The rainy weather which prevailed in October in the great viticultural countries of western Europe was particularly injurious to the quality of the grapes and the must, the sugar content of which is below the normal in most countries. Quantity has also been somewhat reduced owing to these conditions in the vineyards of the Centre and East of France, central Italy and north eastern Spain (Catalonia); the fine weather which set in at the beginning of November permitted the completion of the vintage under good conditions in these regions and also improved the quality of the last grapes gathered. In Spain the vintage took place largely in the first half of November in good weather but the crop of this country showed the effects, particularly as regards quality, of the influence of the adverse conditions of preceding months with the result that quantity, according to the latest information received, will be barely average and quality mediocre.

The total production of central Europe is definitely below that of last year, especially in Switzerland; quality in this area varies greatly.

In the Danubian countries October conditions favoured the vintage and quality seems to be rather good, whereas quantity is smaller.

The Greek crop appears to be good in quantity, whereas quality leaves something to be desired.

North Africa confirms a very good crop, whereas the small Asiatic production is apparently mediocre.

Vines.

COUNTRIES	AREA						PRODUCTION								
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932			
				1931	Average							1931	Average		
														= 100	= 100
1,000 acres				1,000 Imperial gallons				1,000 Amer. gallons							
Germany . .	205	204	201	100.3	101.6	...	62,463	40,928	...	75,012	49,151	...	...
Austria . .	1) 70	71	80	95.4	87.6	21,294	30,473	14,244	25,572	36,595	17,105	69.9	149.5		
Bulgaria . .	222	217	199	102.3	111.7	2) 57,722	2) 61,769	2) 35,007	2) 69,318	2) 74,179	2) 42,041	93.4	164.9		
Spain . . .	1) 3,526	1) 3,526	1) 3,460	100.0	101.9	2) 406,453	2) 419,583	2) 481,258	2) 488,114	2) 503,881	2) 577,948	96.9	84.5		
France . . .	3,867	3,829	3,749	101.0	103.2	...	1,305,136	1,161,878	...	1,567,350	1,395,312	...	...
Italy . . . (u)	2,055	2,007	2,051	102.4	100.2	945,895	731,146	866,401	1,135,934	878,041	1,040,470	129.4	109.2		
Luxemburg .	7,782	7,918	8,572	98.3	90.8	895	1,880	1,139	1,075	2,258	1,367	47.6	78.6		
Czechoslov.	1) 3	3	3	99.0	78.4	...	10,027	6,167	...	12,041	7,406	...	...
Syria a. Leb.	126	130	108	96.9	117.2	—	—	—	—	—	—	—	—		
Algeria . .	1) 773	1) 771	1) 564	100.2	137.1	351,961	348,808	248,229	422,673	418,887	298,101	100.9	141.8		
Tunis . . .	1) 99	1) 87	1) 72	113.5	137.3	32,996	15,398	19,255	39,626	18,492	23,123	214.3	171.4		

u) Unmixed crop. — m) Mixed crop. — r) Area bearing. — 2) Must. — 3) The June estimate has been reduced on the basis of the correction made in the estimate of the area bearing in 1931.

Taking into account the progressive reductions noted since the first forecasts, production in the northern hemisphere promises to be on the whole below the average and considerably smaller than that of last year. A quantitative estimate, as far as it is possible to establish one, can hardly exceed 3,200 million Imperial gallons (3,800 million American gallons) and should therefore closely resemble the bad crop of 1930; it is, however, very probable that the actual figure will not fall below 3,100 million Imperial gallons (3,700 million American gallons) and will therefore be larger than the minima of 1926 and 1921, a result due particularly to the supplementary quantity of North Africa, which amounts to about 2 million Imperial gallons (2.5 million American gallons) compared with these two years; the European production in 1932 will probably, in fact, not differ greatly from that of 1921.

The total supplies at the beginning of this season may, on the basis of these general indications, be considered normal as the production deficit is compensated for by the fairly high level of stocks. The exporting countries have stocks quite large enough to meet not only the rather diminished needs of home consumption but also those of the export market; this is the case not only of the Danubian countries, Yugoslavia, Hungary, Rumania, Bulgaria, and Portugal, where stocks are very large, but also of the three large exporting countries, Spain, Italy and Greece, where the surplus of the old crop is nearly normal.

The poor crop of the central European countries — Switzerland, Austria, Germany and Czechoslovakia — permits the hope of some sales in these producing countries such as Italy has already made in Switzerland, but limited by the crisis. The important British market, on the contrary, is closing more and more to European wines of which the consumption is decreasing while that of Australian and South African wines is increasing. The French market, as last year, constitutes the important factor of the present season because, though home consumption is largely covered by home supplies and those of North Africa, there is still no indication whether the government will relax the restrictions on imports of foreign wines as it has already done in the case of Portugal, or whether on the contrary, it will impose the same restrictions on their entry for consumption as during last season — quotas, compulsory holding of stocks and prohibition of mixing home and foreign wines. The high prices quoted on the French market are, in any case, favourable to the import trade.

The overseas markets can offer only a restricted outlet. The eventual re-opening of the United States market may evidently be of some benefit to the production of high-grade wines, especially champagne, but it must be taken into consideration that, even before the war, the total quantities imported were relatively small, as the 1909-13 average is 7,280,000 Imperial gallons (8,740,000 American gallons).

These conditions are reflected on the market. Quotations nearly everywhere remain firm with a tendency to rise for wines of high or average degree and good quality. The market is in general fairly quiet; some activity is, however, noted on the Italian market where trade stocks have been reduced and exports to Switzerland have increased purchases and also in North Africa, which has shipped very large quantities to France; in Portugal also, trade has been revived by the recent agreement with France; the French and Spanish markets are quiet owing to the uncertainty regarding the application of viticultural measures in these two countries.

The vine situation in the *southern hemisphere* is generally good, if not very good.

P. de V.

* * *

Austria: In the districts where the vines were not damaged the growers, in view of the sunny warm weather in October, prolonged the vintage. Yields vary greatly owing to the damage caused by hail and animal parasites; in the districts that did not so suffer results are satisfactory, particularly as regards quality.

In the majority of cases sugar content of the must is over 26 degrees Klosterneuburg and acidity is moderate.

In view of the fact that the skins of the grapes have been thickened by the drought, the vinification residues are rather large and the yield of must is below that expected. The musts are fermenting regularly and the new wines clarifying rapidly.

At the beginning of November crop condition was 2.2 against 2.4 on 1 October of this year and 2.3 on 1 November 1931.

Spain: The vintage ended in the first half of November in good weather. The results are very irregular; in most areas production is abundant but due to the bad

weather that prevailed up to the time of the vintage the quality of the grapes and of the must is often mediocre save in the southern provinces (Andalusia, Levant); the glucometric degree is generally low.

The market is quiet; some uncertainty prevails regarding the application of the viticultural law and the question of the abolition by France of import restrictions. Prices are firm.

France: In October the weather was wet throughout the country, reducing prospects in the West, Centre and East and considerably diminishing quality nearly everywhere; the fine weather which set in during the latter half of the month in the South and in the first few days of November in the other regions, however, improved the quality of the last grapes gathered.

Production estimates are very conservative and vary widely between 880-1,100 million Imperial gallons (1,060-1,300 million American gallons); it seems that the total production is at least equal to that of 1930 and probably differs little from 990 million Imperial gallons (1,190 million American gallons). Quality of the wines seems, however, generally poor, having one degree, or more, less than last year; the Garonne and Loire valleys and Burgundy generally announce a passable quality but inferior to that anticipated a month ago.

Sales by producers during the season amount to a little over 836 million Imperial gallons (1,004 million American gallons), of which several millions were for distillation; supposing a normal untaxed consumption by the producers themselves, the total stock in the hands of producers should be about 220 million Imperial gallons (260 million American gallons), a much larger quantity than in preceding years. Trade stocks are normal but a little below those held at the end of the preceding season. If account is taken of the abundance of the North African production, home supplies are found to be adequate, whatever the French deficit may be, to meet a total consumption which will certainly not be larger than that of this year which was under 1,430 million Imperial gallons (1,717 million American gallons). Account must also be taken of a possible increase of wine imports from southern countries, due to the scarcity of wines of high degree, unless further restrictions are imposed. The 1932-33 season therefore promises to be normal, but its course will be influenced especially by eventual measures concerning the compulsory holding of part or the whole of stocks; it is, in fact, known that besides the 1931 production, one third of the present production has been provisionally held up in this way and to these quantities may be added imported wine compulsorily held in merchant warehouses. Supplies free for consumption consequently depend essentially on future measures to be introduced by the Government.

Owing to these uncertainties, the commercial season, which is about a month late this year, has begun quietly. Quotations for new wines are from 2 frs to 3 frs per degree hectolitre higher than at the beginning of last season; the demand for old wines is fairly good and their prices are firm with some tendency to rise noted for the wines of 9°-10°, which are not very abundant this year. It is generally estimated that the qualities of high and average degree will find easy sale, whereas the numerous weak wines will be difficult to dispose of.

Hungary: The vintage was almost everywhere completed toward 25 October. In some places wine production is considerably below that of last year due to parasite damage. A production estimate for the whole country is not yet available. Quality of the must is good, particularly in the late vintage.

Italy : The vintage, which began in the Centre and North in rainy weather, which provoked rot and sometimes led to the gathering of grapes before complete maturity, was completed in the last week of October and the first few days of November in drier and sunny weather so that the last grapes gathered are sounder and of higher glucometric degree.

Expectations of a relatively plentiful crop have been confirmed though in general the yield of must is rather poor. Quality is somewhat mediocre in the Centre (Tuscany, Emilia, the Marches, Latium) and in Sardinia, average in the north (Lombardy, Piedmont) and good in the south (Campania, Apulia, Calabria) and Sicily.

Markets are animated, the trade beginning to feel the need of renewing its supplies and old wines having already for some time been exhausted in a number of districts. Prices are firm with even a rise in the best types. Export is fairly active.

Switzerland : According to the *Société suisse d'arboriculture fruitière et de viticulture*, the production of red wine in German Switzerland will be at least about one-third below that of 1931 while that of white wine is expected to be about three-quarters of that of last year. In Romance Switzerland prospects are as follows. Canton Vaud expects a production of 3,300,000 Imperial gallons (3,960,000 American gallons against 5,500,000 (6,600,000) to 6,600,000 (7,900,000) in good years. In the vineyards of Lavaux rather large areas have been damaged by hail; appearance is better in La Côte. In Canton Geneva an average production of 490 (588) gallons per acre is expected, giving a total of 880,000 (1,060,000) gallons. This year's crop prospects in Romance Switzerland as a whole are the poorest recorded for several years.

United States : The latest estimate of production of grapes is 43,200,000 centals compared with 32,437,000 in 1931 and 48,933,000, the average for 1926-30 (133.2 % and 88.3 %).

Palestine : Early rains in October have caused considerable damage to late grapes in Ramallah Sub-District. A large part of the crop had to be sold at low prices for wine making.

Syria and Lebanon : Hail and frost have affected yields in the Lebanon, where only the vines of the littoral have a normal production. In Latakia also yields below average are expected.

Algeria : The latest information based on crop declarations indicates that production in the departments of Algiers and Constantine, which contributes nearly half of the total production of the country, is about 33 million Imperial gallons (40 million American gallons) larger than that of last year. The production of the department of Oran, which represents the other half of the total, will be a little smaller than that of last year but the deficit seems, however, to be smaller than the surplus obtained in the remainder of the territory so that the total production of Algeria should be about 10 million gallons larger than that of last year and very slightly above the 350 million Imperial gallons (420 million American gallons) given officially as an approximate estimate.

The vintage was completed in the last week of October in the more elevated regions in favourable weather which removed all danger of rotting and somewhat improved the tugar content of the grapes. Fermentation took place favourably in low-lying areas shanks to the rise in temperature.

In the coastal plains cultivation began at mid-October but was hindered a little in places by inadequate soil moisture.

Viticultural reports give for Algiers department a production of 166,050,000 Imperial gallons (199,411,000 American gallons), representing an increase of 18 % on that of last year: 140,984,000 Imperial gallons (169,309,000 American gallons), and an increase of 41 % on the average of the five years ending 1926-30: 118,108,000 Imperial gallons (141,837,000 American gallons).

Tunis : The vintage and winemaking were finished in October. Despite some occasional damage to the vines by «rougeot», the total production estimate remains unchanged.

Australia : Production this year is 13,680,000 Imperial gallons (16,428,000 American gallons), representing an increase of 4.6 % on that of last year: 13,078,000 Imperial gallons (15,706,000 American gallons) and a decrease of 22.9 % on the average of the five years ending 1929-30: 17,732,000 Imperial gallons (21,294,000 American gallons).

The winter was favourable to the vines; rains were frequent and regular. At the end of September, crop condition was good and the bunches were healthy and numerous in the southern vineyards. If spring frosts and damage by thrips are avoided, there seems every reason to expect a good or even excellent, grape season in South Australia and Victoria.

OLIVES

The information collected by the Institute on the course of the world olive oil season, permits the rough calculation of the total olive oil production during the season 1932-33 although the preliminary official data of yields are not yet known for nearly all the oil producing countries.

In Spain the weather conditions, except during some periods of the summer, were on the whole favourable to the olives, the flowering and fruit formation of which took place under good, and sometimes excellent, conditions, thanks to beneficial precipitation and sufficient sunshine. At the beginning of the autumn, however, the situation deteriorated somewhat and in Andalusia (which in 1931-32 produced about 65 % of the total Spanish crop), the olives which, in October, still had a flourishing aspect were subject to increasing attacks of plant parasites and insects; the same phenomena occurred in La Mancha, another very important oil producing region. According to the first private estimate, about 11 million centals (145 million American gallons) of oil was produced; later estimates have, however, lowered the first forecasts and it is at present generally considered that oil production will not reach 9 million (116 million). Gathering has been everywhere considerably in delay.

In Italy also the course of the season has been very satisfactory, particularly during June, July and August; in some areas, however, the growth of olives was retarded by rains and low temperatures. Oil production in Italy is on the whole forecast to slightly exceed 4 million centals (58 million American gallons) a quantity consequently a little larger than that of last year; the highest yields have been obtained in Tuscany, Latium and Apulia while in Calabria and the Islands adverse influences, such as the increased activity of olive fly, have more or less considerably damaged the product. Further damage may be anticipated in southern Italy due to torrential rains in mid-November.

According to official information, a very large production is forecast in Greece, although it seems that hot winds have caused extensive dropping of fruit; the first forecast of production is 2.4 million centals (32 million American gallons), exceeding that of 1931-32 which had been a record for the last ten years (the average production of Greece is estimated at 1.8 million centals or 23.8 million American gallons); according to the same estimate, the total quantity of table olives should exceed 550,000 centals.

As regards the other European oil producing countries of minor importance, Portugal announces a very poor production due principally to hot, dry winds, which have provoked large dropping of fruit and to olive fly; in France, in the department of the Maritime Alps and in the Gard, forecasts are favourable as regards both quantity and quality; in Yugoslavia the situation is considered to be average.

In most of the eastern oil producing countries (Syria and Lebanon, Palestine and the Italian Aegean Islands), the drought considerably damaged the olives, which have given very poor yields; an exception is formed by Turkey, in which the very high summer temperature and the prolonged absence of precipitation do not seem to have considerably damaged production, which is, in fact, considered abundant. In Syria and Lebanon flowering was greatly diminished and the lack of rain was particularly felt in Latakia; in Palestine also the situation is considered to be very mediocre and only poor yields are anticipated due especially to the intense heat which has given rise to profuse dropping of fruit.

In the countries of North Africa, except Cyrenaica, where the olive crop was nearly destroyed by drought, the situation is better and the weather conditions have, on the whole, permitted a good flowering and normal fruit formation; in Algeria, except for not very serious attacks of «*Antennaria elaiophila*», which have slackened vegetative growth in some areas and the dropping of olives caused by scirocco winds, the aspect of the crop was nearly always satisfactory; production is forecast to be nearly normal (average oil production for 1926-27 to 1930-31 was about 415,000 centals or 5.5 million American gallons). In Tunis the weather was favourable for flowering and fruit formation and an oil production slightly above the average is hoped for. For Morocco also, forecasts are good.

Lastly, in the United States (California), the new olive crop is expected to be a little larger than that of 1931.

The existence of a number of elements of uncertainty does not, at present, permit the formation of an exact prediction of world olive oil production during the season 1932-33; the various data at present possessed, however, give reason to believe that this production may reach 17 ½ million centals (230 million American gallons) which, consequently, would not differ greatly from either that of 1931-32 (17.4 million centals or 229 million American gallons) or the average of 1926-27 to 1930-31 (17.9 million centals or 235 million American gallons).

* * *

Italy : The olives have ripened under fairly good conditions.

Palestine : Picking of olives is nearing its end in the plains ; it is in full swing in the mountains but has not started in most of the best olive groves. The crop is not likely to exceed 20 % of the normal.

Syria and Lebanon : The crop appears deficient especially in the Lebanon.

Algeria : The olives ripened and filled out rapidly in the latter half of October ; the crop promises to be a good average.

Oil production this year is forecast at 424,000 centals (5,570,000 American gallons) representing an increase of 3.1 % on that of last year: 411,000 centals (5,400,000 American gallons) and an increase of 1.7 % on the average of the five years ending 1930-31 : 417,000 centals (5,480,000 American gallons).

French Morocco : Production is less than last year ; ripening in the central districts was backward.

COTTON

The fourth report of the United States Government on cotton production in the current season shows an increase of 2,495,000 centals (522,000 bales) of lint, or 4.6 %, on the October estimate and of 3,064,000 centals (641,000 bales) on the first estimate of August. This month also the Government estimate is above the average of private estimates by about 2,600,000 centals (550,000 bales) and the market reacted with a fall in prices, which lasted, however, only a few days. The estimated production is based on an average yield of 156.2 pounds lint per acre against 149.3 pounds last month and the average of 151.4 pounds in the ten years ending 1930-31. An increase in estimated yields as compared with those estimated in October has been announced for all the leading cotton States save Mississippi, where there has been no change. Throughout October the weather remained on the whole favourable for picking and ginning and, though quality suffered from the rains, these have not appreciably affected the yield.

In Egypt picking is over and the results seem generally satisfactory. It is expected that the next estimate will be above the first. The Government have decided not to release any part of their stocks until the current crop has been sold ; but both exports and arrivals at Alexandria from the interior are so far well below those of previous years.

As regards India, it is not yet possible to obtain a general idea of the crop situation. The weather does not seem to have been favourable in October ; but production is expected to be larger than last season despite the reduction in area.

The preliminary estimate of cotton production in China indicates an increase of over 40 % on the average of 1926-27 to 1930-31. Last year's production was, as is known, deficient due to floods. The next estimate will not be issued until December 15. It should be noted that this year's estimate does not include the province of Liaoning in Manchuria, which last year planted 3.6 % of the total area and produced 2.8 % of the total Chinese production.

Cotton.

COUNTRIES	AREA					PRODUCTION OF LINT											
	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33		1932/33	1931/32	Average 1926/27 to 1930/31	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33					
				1931/ 1932	Aver- age							1931/ 1932	Aver- age				
														= 100	= 100	= 100	= 100
1,000 acres					1,000 centals			1,000 bales of 478 lb.									
Bulgaria . .	20	13	12	151.0	163.2	40	23	16	8	5	3	169.2	245.5				
Spain . . .	20	14	22	138.6	88.7	19	16	21	4	3	4	117.7	90.8				
Italy. . . .	3	4 1)	9	78.3	37.4	5	7 2)	18	1	1 2)	4	67.9	24.6				
*U.S.S.R. . .	5,787	5,346	2,503	108.2	231.2	...	8,812	5,695	...	1,843	1,191	...	...		
U. S. A. . .	36,611	40,693	44,690	90.0	81.9	57,107	81,719	70,904	11,947	17,096	14,834	69.9	80.5				
Mexico . . .	156	319	465	48.8	33.5	416	989	1,186	87	207	248	42.0	35.0				
China	3) 5,631	4,803	4,806	117.2	117.1	3) 14,433	8,529	10,183	3) 3,019	1,784	2,130	169.2	141.7				
Korea	393	472	493	83.3	79.8	606	483	683	127	101	143	125.7	88.8				
*India	4) 18,466	4) 19,654	4) 21,135	94.0	87.4	...	16,256	21,789	...	3,401	4,558	...	...		
*Syria & Leb.	25	75	51	32.9	48.4	...	81	47	...	17	10	...	...		
Algeria . . .	5)	5	14	6.8	2.2	1	6	28	6)	1	6	15.4	3.6				
Egypt	1,135	1,747	1,861	65.0	61.0	4,155	6,153	7,649	869	1,287	1,600	67.5	54.3				
Eritrea . . .	5	7	6	71.4	80.0	7	8	6	2	2	1	89.2	124.1				
TOTALS . . .	43,974	48,077	52,378	91.5	84.0	76,789	97,933	90,694	16,064	20,487	18,973	78.4	84.7				

* Countries not included in the totals. — 1) Average 1926/27, 1927/28, 1929/30 and 1930/31. — 2) Average 1929/30 and 1930/31. — 3) Preliminary estimate. — 4) Estimate of the second report. — 5) Area under 500 acres. — 6) Production under 500 bales.

On the basis of the figures and information available, it may be estimated that the total cotton area of the five largest producing countries, namely, the United States, India, U.S.S.R., China and Egypt, is smaller by nearly 7 % or about 5 million acres than last year, whereas the total production of these countries shows a decrease of 18 % to 20 % or nearly 22 to 24 million centals (4.5 to 5 million bales of 478 lbs.) of ginned cotton.

I. S.

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United States : In the week ended on November 2 the weather was mostly fair in the western part of the belt though two days rain in Arkansas interrupted picking and ginning. Much cotton was still out in northwestern Texas. There was some frost damage in New Mexico and parts of Texas. In the eastern cotton belt considerable rain fell though picking was generally well along and practically completed in most places. In the following week ended on November 9 cotton harvesting was completed in good weather in many parts of the belt except in the northern districts, in the lowlands of Oklahoma and in Arkansas. Similar conditions continued up to November 16.

The quantity of cotton, not including linters, ginned from the 1932-33 crop to the close of business on 17 October was 7,311,000 running bales (counting round bales as half bales), against 9,498,000 in 1931, 9,255,000 in 1930, 9,095,000 in 1929, 8,151,000

in 1928 and 8,118,000 in 1927. To the close of business on 31 October: 9,246,000 against 12,124,000 in 1931; 10,864,000 in 1930; 10,892,000 in 1929; 10,162,000 in 1928 and 9,921,000 in 1927.

St. Vincent (British West Indies): Cotton planting commenced on 1 September, after a close season of four months. Germination was good, although the weather was somewhat dry. The area for the 1932-33 crop will be small and is estimated at about 550 acres, as against 1,802 in 1931-32 and 3,946, the average for the preceding five-year period. Percentages: 30 and 14 respectively.

China: This year's cotton crop appears certain to be much better than that of last year. In 1931 only the crop in the northern provinces was comparatively good, while the picking in Kiangsu and Hupeh, the two most important cotton producing provinces in the Yangtze valley, was unprecedentedly poor. The improved crop this year is chiefly attributable to better weather conditions, especially in the northern provinces. In the southern provinces cotton suffered in 1931 from excessive rainfall, but this year similar damage was done by a dry spell. Generally speaking, this year's crop in the southern provinces, in spite of insufficient rain, is expected to be better than that of last year.

India: Heavy rain fell in the South Deccan and some other areas of Bombay Presidency in the latter half of October. The weather in the Central Provinces in the first half of October was mostly clear with occasional cloud and light rain on the Plateau; in the week ended on the 24 th., light to moderate rain fell in the West and North. In the Punjab the weather during the month was mostly dry; according to a telegram of November 10 from the Department of Agriculture at Lahore, cotton picking was in progress in the Punjab and yields were expected to be generally below normal to normal; a later telegram of November 11 stated that crop condition in the Punjab was 94 % of normal.

According to a report dated October 27 received from the Department of Commercial Intelligence and Statistics of India, the weather conditions for the cotton crop had not been quite favourable and the condition of the crop, on the whole, was reported to be fair.

French West Africa: The 1931-32 cotton crop was, according to the latest information received, satisfactory as regards both quantity and quality and probably better than that of 1930-31. It is also noted that the apparent decrease shown by the statistics for 1931 and 1932, does not correspond to the production situation, as the statistics give only the quantities bought by the trade and because, instead of decreasing, actual production has, on the contrary, increased during the last two years.

In Dahomey, cotton growing for 1932-33 appears to be on the decline due to low prices at planting time and despite the efforts made by the Government, which has distributed selected seed in the different areas. In the Ivory Coast, the crop seems smaller than last year due to inadequate rainfall.

Egypt: During October temperature favoured the opening of bolls of the second picking of cotton and irrigation water was sufficient. Picking has been practically completed throughout the country. In some places a third picking has been possible, an event unknown during the last seven years. It is expected that the second official estimate, which will be published on the first Monday of December, will exceed the first forecast by nearly 7 %.

Cotton ginned up to the end of October, in bales of 478 lb. net weight :

Varieties	1932	1931	1930	1929	1928
Sakellaridis	42,920	45,630	71,050	109,770	156,510
Other varieties above :					
I 3/8"	29,430	339,710	386,140	443,690	483,240
I 1/4"	22,310				
I 1/8"	203,700				
<i>Total</i>	298,360	385,340	457,190	553,460	639,750
Scarto (linters)	6,050	8,680	8,690	10,500	15,240

Uganda : To the end of September the acreage planted in all provinces was estimated at 1,045,000 acres, showing an increase of 20.6 % on the corresponding estimate of last year (867,000 acres), which was only slightly higher than the 1931-32 final estimate (866,000 acres). Reports of localised insect damage were received and in Teso district the initial stages of blackarm could be found in many areas. In general, however, the condition of the crop was normal in all districts.

Tanganyika : Cotton picking was progressing during September in the greater part of the country, both quality and quantity being generally satisfactory. In some districts of the Central Line Area harvesting was already finished and the bulk of the crop had been marketed.

Togo (French Mandate) : Actual cotton production in 1932 was, as in 1931, very satisfactory, showing an increase on previous years which the statistics do not indicate as they refer not to production but to the trade situation ; falling prices have this year brought about an even larger reduction in purchases on the home market than in 1931 despite the larger supplies of the product.

FLAX

Great Britain and Northern Ireland : Only a very small portion of the crop had been scutched by the beginning of November. Yield and quality are expected to be fairly good.

Hungary : Production of flax is average.

U. S. S. R. : On 15 October harvesting of flax for fibre (*dolgunetz*) had been completed on 5,926,000 acres, 95.5 % of the area sown ; it had been entirely completed in the Western Moscow, Ivanovo and Nizhni-Novgorod regions and in Tataria and Ukraina, almost completed in the Northern and Leningrad regions and in Western Siberia ; and was still backward in the Ural region, which had harvested the crop on 72.4 % of the sown area, Eastern Siberia with 59.2 % and the Far East with 31.0 %.

Argentina : According to an official report of 19 October crop condition is good in the province of Buenos Aires, moderate in the north of Santa Fé and good in the south ; moderate in the province of Entre-Rios, where locusts have caused very serious losses, and good to excellent in the province of Córdoba. Vegetation has been irregular and in some areas in the north harvesting had already begun. In the provinces of Santa Fé and Entre-Rios, the most important producing centres of the country, it is estimated that the crop has been destroyed by locusts over an area of 1,110,000 acres and growers have resown.

Canada: The November estimate of linseed production has been greatly reduced, the largest reduction having been made for the crops of the Prairie Provinces. The reason for this change in the estimate is the previous underestimation of damage to the grain by late drought.

Flax.

COUNTRIES	†) AREA				†) PRODUCTION							
	1932	1931	Aver. 1926 to 1930	% 1932 — 1932/33	1932	1931	Aver. 1926 to 1930	1932	1931	Aver. 1926 to 1930	% 1932 — 1932/33	
	—	—	—	—	—	—	—	—	—	—	—	
	1932/33	1931/32	1926/27 to 1930/31	1931 Aver- 1931/ 1932 age = 100	1932/33	1931/32	1926/27 to 1930/31	1932/33	1931/32	1926/27 to 1930/31	1931 Aver- 1931/ 1932 age = 100	
	1,000 acres				1,000 centals				1,000 pounds			

Fibre.

Germany . . .	11	16	38	68.1	29.6	...	117	—	...	11,684	—	—	—
Austria §) . .	8	8	10	95.9	74.4	106	107	146	10,582	10,701	14,592	98.9	72.5
Belgium . . .	21	36	59	57.9	35.5	149	254	542	14,887	25,370	54,180	58.7	27.5
Bulgaria . . .	1	2	1	56.2	160.6	2	2	2	154	176	152	87.6	101.6
Estonia . . .	36	45	83	80.0	43.8	74	131	208	7,443	13,056	20,826	57.0	35.7
Finland 2) . .	11	10	11	112.5	101.5	...	...	28	...	...	2,845	...	...
France . . .	25	26	79	98.7	32.1	...	138	589	...	13,788	58,875	...	...
N.Ireland . . .	6	7	31	81.9	19.5	...	31	131	...	3,091	13,058	...	...
Hungary . . .	20	47	13	41.8	150.6	...	133	65	...	13,264	6,518	...	...
Latvia . . .	78	104	150	75.5	52.3	209	287	440	20,878	28,660	43,955	72.8	47.5
Lithuania 2) .	99	139	212	71.5	46.7	271	466	748	27,070	46,628	74,800	58.1	36.2
Netherlands . .	5	16	37	29.9	13.1	31	99	252	3,086	9,918	25,153	31.1	12.3
Poland . . .	252	252	281	99.9	89.9	...	756	1,191	...	75,611	119,097	...	...
Czechoslov. . .	16	23	46	71.4	35.4	68	75	206	6,814	7,469	20,608	91.2	33.1
U.S.S.R. §) . .	6,202	5,779	3,457	107.3	179.4	...	12,026	7,410	...	1,202,626	740,958	...	...

Linseed.

Thousand bushels
of 56 pounds

Austria . . .	5	5	7	95.8	70.3	20	19	24	36	33	43	109.4	83.9
Belgium . . .	21	36	59	57.9	35.5	93	182	279	166	326	498	51.0	33.4
Bulgaria . . .	1	2	1	56.2	160.6	6	11	2	11	19	3	57.6	321.8
Estonia . . .	36	45	83	80.0	43.8	83	141	223	149	253	398	58.9	37.3
Italy . . .	22	24	38	89.2	56.3	...	113	175	...	202	312	...	...
Latvia . . .	78	104	150	75.5	52.3	205	279	411	366	499	735	73.4	49.8
Lithuania 2) .	99	139	212	71.5	46.7	315	562	810	563	1,003	1,446	56.1	38.9
Czechoslov. . .	16	23	46	71.4	35.4	51	56	164	91	100	293	90.8	31.1
U.S.S.R. . . .	4) 7,347	7,574	4,528	—	—	...	...	13,135	...	...	23,456	...	...
Canada . . .	454	627	511	72.4	88.8	1,419	1,436	2,422	2,534	2,565	4,325	98.8	58.6
United St. . .	2,667	2,325	3,040	114.7	87.7	7,168	6,200	11,453	12,800	11,071	20,452	115.6	62.6
India . . .	3,241	3,008	3,224	107.7	100.5	9,206	8,445	8,355	16,440	15,080	14,920	109.0	110.2
French Mor. . .	61	89	50	68.6	122.4	...	522	252	...	932	450	...	...
Argentina . . .	5) 7,401	5) 8,640	5) 7,178	85.7	103.1	...	47,858	41,461	...	85,461	74,037	...	...

†) The two dates given refer to the years in which the harvest took place in the northern and southern hemispheres respectively. — §) Production expressed in terms of air-dried stalks. — 2) Average 1927 to 1930. — 3) "Dolgunetz" variety. — 4) Total area of "dolgunetz" flax for fibre and flax for seed sown as on 20 June 1932. — 5) Area sown.

HEMP

Hungary: Production is average.

U. S. S. R.: On 5 October the harvest of hemp had been completed on 1,144,000 acres, 49 % of the area sown.

Hemp.

COUNTRIES	AREA					PRODUCTION					
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932		
				1931	Aver- age				1931	Aver- age	
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100		
Fibre.											
Germany 1)	1	1	2	107.3	35.3	2)	—	—	—	—	
Austria	1	1	1	91.6	95.4		1,631	2)	1,728	2)3) 1,775	94.4
Bulgaria	11	9	9	120.2	117.1		3,968		4,189	2,992	94.7
Hungary 4)	17	16	22	107.9	75.0		...		8,763	2,557	...
Italy	129	136	223	94.3	57.6		...		125,959	207,682	...
Poland	76	76	76	100.0	100.9	...		31,773	44,585	...	
Czechoslovakia . .	19	21	24	93.5	79.9	10,059		9,189	14,270	109.5	
U.S.S.R.	2,063	2,282	2,193	90.4	94.1	...		693,660	...	...
Syria and Lebanon	6	6	6	95.8	87.7	...		3,530	3,784	...	

Hempseed.

Austria	5)	5)	1	81.6	56.6	154	156	229	99.0	67.3
Bulgaria	11	9	9	120.2	117.1	4,189	3,668	2,397	114.2	174.8
Hungary 4)	17	16	22	107.9	75.0	...	5,493	8,925	...	...
Poland	76	76	76	100.0	100.9	...	47,102	45,597	...	...
Czechoslovakia . .	19	21	24	93.5	79.9	6,476	6,097	10,907	106.2	59.4
U.S.S.R.	2,063	2,282	2,193	90.4	94.1	...	...	1,006,907	...	...

1) Hemp and other textile plants. — 2) Production expressed in terms of air-dried stalks. — 3) Average 1927-30. — 4) Unmixed crops. — 5) Area inferior to 500 acres.

HOPS

Great Britain and Northern Ireland: The continued shrinkage of area under the crop this year by 15.3 % was outweighed by the fact that a smaller area was left unpicked and by the unit-yield being appreciably better than last year though under

Hops.

COUNTRIES	AREA					PRODUCTION				
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932	
				1931	Aver- age				1931	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	
Germany	20	25	35	78.2	56.6	10,929	17,152	27,220	63.7	40.1
Belgium	1	2	3	69.0	42.7	884	1,148	4,588	77.0	19.3
Engl. and Wales . .	17	20	23	84.7	71.0	21,056	18,900	32,278	111.2	65.2
*Hungary	1)	1	1)	78.2	100.0	..	274	219	..	..
Czechoslovakia . .	24	31	35	79.1	67.8	16,451	27,177	24,911	60.5	66.0
United States . . .	22	21	23	101.4	93.9	25,315	25,852	30,353	97.9	83.4
TOTALS	84	99	119	87.5	74.5	74,635	90,229	119,350	83.1	62.8

* Countries not included in the totals. — 1) Area inferior to 500 acres.

the average. All the hop-growing counties showed an improved yield. On the whole the season was not unsatisfactory. The weather was unfavourable in the early stages and downy mildew and insect pests were rather prevalent but conditions later improved considerably and the quality of the crop is generally considered to be good.

Hungary : Drying was completed toward 25 October; production is good.

TOBACCO

Bulgaria : According to preliminary estimates received in July area and production were respectively 77,000 acres and 512,600 centals. The most recent figures indicate, however, a marked reduction both in area and production. In fact, according to the November estimates, the area sown this year is only 47,000 acres and the production 313,000 centals, that is, the smallest since the war. The heavy decrease in production is due not only to storms but still more, to the smaller area following on governmental measures for the limitation of the crop and to the limitation by growers themselves in hope of a rise in prices.

Tobacco.

COUNTRIES	AREA					PRODUCTION				
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932	
				1931	Average				1931	Average
1,000 acres					1,000 pounds					
*Germany	27	26	22	104.5	121.4	—	—	—	—	—
Belgium	7	7	7	94.1	89.6	13,518	14,469	15,026	93.4	90.0
Bulgaria	47	77	73	61.3	64.3	31,306	54,784	54,836	57.1	57.1
Spain	12	9	7	138.4	186.5	13,228	12,991	7,931	101.8	166.8
*Hungary	57	62	56	91.5	101.3	...	80,404	65,104	...	...
Czechoslovakia . . .	25	22	15	110.4	163.6	33,069	30,495	17,729	108.4	186.5
*U.S.S.R.	449	450	222	99.7	202.0	...	...	320,968	...	...
United States . . .	1,447	2,030	1,847	71.3	78.4	1,024,000	1,600,910	1,413,742	64.0	72.4
Japan	84	90	90	92.5	92.6	138,230	155,757	143,138	88.7	96.6
*Syria and Lebanon .	12	19	8	61.3	150.0	...	11,671	5,103	...	...
Algeria	52	57	61	91.5	85.6	39,683	39,863	49,852	99.6	79.6
TOTALS	1,674	2,292	2,100	73.1	79.7	1,293,034	1,909,269	1,702,254	67.7	76.0

* Countries not included in the totals.

Hungary : Harvesting was completed toward 25 October and drying is in progress. Production is average.

United States : In the week ended on November 2 tobacco stripping had begun in Kentucky, while the crop was curing satisfactorily in Wisconsin.

Japan : In consequence of much rainfall, both quality and yield of tobacco have slightly gone down.

Palestine : The picking of the tobacco crop in Haifa and Acre sub-districts is completed. The stringing and drying of leaves are in progress.

OTHER PRODUCTS

Tea.

Ceylon : During the month of September rainfall was below the average, day temperature was generally below, and night temperature above the average. Humidity was normal. Crop condition on 1 October was good.

India : According to a report dated October 27 received from the Government of India, weather conditions in North India, during September were rather variable and, on the whole, were moderately favourable to the growth of the crop. Temperatures were becoming lower and crop prospects were fairly good. Statistics to the end of September recorded an increase of 21 ½ million lb. as compared with the outturn to the same date of last year.

In South India, seasonable weather was experienced during September, and crop prospects were moderate. The outturn was 21.2 % ahead of that to the same date of last year.

Coffee.

Guadeloupe : There has been a certain extension of plantings.

Puerto Rico : Damage to the coffee crop by the recent storm is officially estimated at 20 ½ % or 3,040,000 lbs.

French West Africa : The coffee plantations have again this year been somewhat extended in Guinea, the Ivory Coast and Dahomey.

Madagascar : Official crop forecasts for 1932, not including *arabica*, give a production of 275,000-290,000 centals, the largest so far recorded for the island.

Cacao.

Brazil : Entries of cacao by rail in the Ilheos and Rio de Contas zones* in September and October were exceptionally heavy, the total quantity transported being a record for both zones. The following statistics enable a comparison with last season to be made.

	September 1932	May to September 1932	September 1931	May to September 1931
Ilheos zone (1000 lb.)	17,858	46,972	5,079	25,552
Rio de Contas zone (1000 lb.)	2,646	6,614	410	1,499
	October 1932	May to October 1932	October 1931	May to October 1931
Ilheos Zone (1000 lb.)	14,121	61,093	14,021	39,573
Rio de Contas zone (1000 lb.)	1,753	8,367	529	2,028

Prospects for the main crop are reported to be good. Weather has been favourable.

Rainfall at Ilheos in September was 1.31 inches against the average of 4.86 inches and in October 3 inches against the average of 4.58 inches; the aggregate rainfall from 1 January to the end of October was about 2 inches above normal.

Guadeloupe : Growers have pulled up a certain part of their plantations.

Trinidad : In the first half of October precipitation was relatively small ; unusually high temperatures continued. Harvesting had generally begun, though only on a small scale.

Gold Coast : The following table shows the movement of the crop during the past season from October 1931 to September 1932 with comparative data for 1930-31:

	September 1932	October 1931 to September 1932	September 1931	October 1930 to September 1931
Arrivals by rail at Takoradi and Accra (1000 lb.) . . .	5,634	261,681	1,008	270,531
Shipments from Takoradi and Accra (1000 lb.)	16,955	362,263	8,761	392,089
Shipments from all ports (1000 lb.)	18,198	462,893	12,542	486,374
Stocks at Takoradi and Accra beach at end of September (1000 lb.)	5,134	—	...	—

Information from up-country centres up to mid-October confirmed the earlier reports of a major crop earlier than normal. Ashanti is usually about one month ahead of other areas and reports from Bekwai, Efiduase, Juaso, Kumasi and Offinso estimated that 70 % of the crop was already ripe on 10 October. In the Eastern Province reports from Anyinam, Kibi, Koforidua, Nsawam and Tafo estimated that 40 % of the crop was ripe by 10 October. Akwapim and Krobo were stated to be later, with only 10-15 % of the crop ripe. The crop in the Central and Western Provinces appeared to be in the same stage as in the Eastern Province ; Asuansi, Oda, Winneba and Dunkwa reported that about 35 % of the crop was ripe.

It was indicated that by the end of November the proportion of the crop to have ripened would be about 90 % in Ashanti, 60 % in the Eastern and Central Provinces and 70 % in the Western Province.

In the first half of October delay in picking due to unfavourable drying weather was again reported, especially from Ashanti. It was estimated that up to 10 October about 25 % of the major crop had been picked in Ashanti, 35 % in Anyinam, Kibi, Nsawam and Tafo, 10 % in Krobo and 25 % in the Central Province.

By 24 September 38 % of the pods on the 41 observation plots on stations and farms maintained by the Department of Agriculture had ripened. In normal years only 25 % of the crop ripens by the end of September and 10 % is picked. The following table shows the results of the count on the Department's 41 plots at the end of September as compared with the results at the same date last year :

		Pods harvested %	Ripe pods %	Large green pods %	Small green pods %
Eastern Province (12 plots)	1932	22	13	30	35
	1931	12	11	32	45
Central Province (16 plots)	1932	2	17	23	58
	1931	1	12	22	65
Western Province (6 plots)	1932	—	41	30	29
	1931	—	19	38	43
Ashanti (7 plots)	1932	40	15	24	21
	1931	21	26	24	29
Means weighted according to produc- tion of areas	1932	22	16	27	35
	1931	12	16	28	44

So far as can be judged at present, therefore, the crop will ripen early and unless recent rains result in further yields of pods in January to February the crop will end more sharply than usual.

Last year's major crop totalled about 423 million pounds of which 399 million pounds were shipped before the end of May 1932 and 25 million pounds were held in stock until after May. The 41 plots established by the Department on farms showed on the average a greater number of pods this September than in September 1931 (Eastern Province +21 %, Central Province +15 %, Western Province —13 %, Ashanti +5 %) so that if pods this year are of similar size the yield per acre should be greater. There is one factor, however, which cannot be measured, namely, the possible decrease of the total area under cacao. It is probable that for various reasons new plantings have decreased during the past few years and so have ceased to counter-balance any areas abandoned or deteriorated in yield. It is possible that the total output of the country may be declining although this year's unit-yields are higher than those of last year.

In the majority of cases yields of farms were reported to be above those in 1930-31, thus giving ground for revising the forecast previously issued. Up to 10 October Dunkwa reported lower yields than last year, Efiduase, Juaso, Oda, Sekondi-Dixcove and Winneba reported yields similar to those of last year and Anyinam, Asuansi, Bekwai, Huhunya, Kibi, Koforidua, Kumasi, Nsawam, Saltpond and Tafo report higher yields. While, however, unit-yields this main season are generally higher than those of the 1931-32 major crop, which amounted to 423 million pounds, they are reported to be below the average for the five major seasons ending 1931-32, which was 446 million pounds. The 1932-33 major crop should therefore be somewhere between these two figures.

As there is some reason for believing that the production of the country is declining rather than increasing it is regarded as safer to assume that this major crop will be nearer to the 1931-32 figure than to the average.

In normal years the major crop, produced from September to February, is shipped from October to June but there is an increasing tendency to delay shipments. Stocks declared by merchants on 1 September were as follows: 1931-32 major crop 18.7 million pounds; 1932 minor crop 9.8 million pounds; total in merchants' hands 28.4 million pounds. If these stocks and the 1932-33 major crop are shipped to time total exports for the major shipping season, 1 October-30 June, should be about 465 million pounds.

Groundnuts.

India: In Madras rainfall in October was heavy on the west coast and moderate in many other areas. On October 29, standing crops were in fair condition. Heavy rain fell in the South Deccan and some other areas of Bombay Presidency in the latter half of October. Rain fell on only two days in Lower Burma during October.

The area under groundnuts in India for the season 1932-33 is estimated in the second report at 5,000,000 acres compared with 3,803,000 in 1931-32 and 4,242,000, the average for the preceding five seasons (131.5 % and 117.9 %).

French West Africa: In Guinea Government encouragement has brought about some extension of groundnut growing. On the Ivory Coast, insufficient rain has resulted in diminished yields. In Dahomey, the groundnut area remains unchanged. In Niger the sowings have been effected under good conditions; numerous swarms of locusts have caused very serious damage in two districts.

Egypt: The harvesting of the groundnut crop began in the third week of October. The crop is normal.

Rapeseed and sesamum.

Austria : The mild weather of October has been very favourable to the winter colza crop, the condition of which was 2.3 at the beginning of November compared with 2.6 on 1 November 1931.

Bulgaria : The spring frosts this year nearly destroyed this year's colza crop. In fact, the area which, according to the first estimate, was calculated at 12,400 acres has been reduced in November to only 2,450. Compared with the preceding year (31,800 acres) and the average of 1926 to 1930 (35,500 acres), this year's area represents only 77.0 % and 68.9 % respectively. The production of 77,000 centals (154,000 bushels) at first forecast has been lowered to 15,400 (30,900), that is, to a record low level for the country. Compared with the preceding year (262,000 centals ; 524,000 bushels), and the 1926-30 average (278,000 ; 555,000), this year's crop represents only 5.9 % and 5.6 % respectively. The areas on which the crops were destroyed have been re-sown to other spring crops.

For sesame, on the contrary, the latest estimate indicates a small increase in area compared with the first estimate. Despite this fact, production has, according to the same estimate, been reduced to 60,000 centals (3,000 short tons) against 71,000 (3,500) forecast in July. Compared with the preceding year (65,000 ; 3,250) and the 1926-30 average (33,000 ; 1,650), this year's production represents 91.4 % and 179.7 % respectively.

Hungary : The winter colza crop has come up irregularly due to the drought. After the recent rains some improvement has taken place ; growth is, however, backward.

Rumania : The area sown to winter colza up to 1 November was 10,100 acres compared with 30,100 sown up to 1 November 1931 and 46,800 up to 1 November 1930.

India : The second estimate of the area under sesame in India in 1932-33 is 3,771,000 acres or 107.7 % of last season (3,500,000) and 110.1 % of the average of the five seasons 1926-27 to 1930-31 (3,426,000 acres).

According to a report dated October 27 received from the Government of India, the condition and prospects of the sesamum crop were reported to be fairly good.

French West Africa : Attempts have been made to grow sesamum in Guinea.

Sericulture.

The 1932 sericultural season in Europe has been generally good and, despite the reduction in incubations in some countries due to economic reasons, the total amount of cocoons obtained does not seem, according to the first estimates that are now available, to be very different from that in 1931.

The season has been on the whole satisfactory in Italy though much later than normal both in regard to the vegetation of the mulberries, which have, however, given a healthy and abundant leafage, and in regard to the initiation of rearings, which have developed under favourable conditions such as to permit of yields above those of last year ; in fact a decrease of 17 % in the eggs incubated has resulted in a contraction of the crop calculated at about 7 % unless, as

seems unlikely, the first official estimate of 70.5 million pounds of cocoons undergoes considerable modification. The encouragement of the Government, including the promise of a cash bonus on production this year to rearers, undoubtedly had some influence on these better results.

French sericulture has this year experienced an aggravation of the steadily accelerating decrease and there is each year a smaller quantity of eggs incubated and a more marked diminution in the number of rearers (which was over 90,000 in 1913, about 59,000 on the average of the postwar decennium and 22,055 in 1931); the weather, which has been especially unfavourable to late rearings, causing many losses in the early part of July, has still further diminished the current crop.

Sericulture.

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932	
				1931	Aver. age				1931	Aver- age
1,000 ounces					1,000 pounds					
Bulgaria	28	22	43	122.9	64.0	2,866	2,446	4,741	117.2	60.5
*Spain	13	...	27	...	47.2	1,199	1,160	1,938	103.3	61.9
France	18	20	55	91.0	33.2	2,163	2,196	6,088	98.5	35.5
Italy	582	701	982	83.0	59.3	70,548	75,968	111,278	92.9	63.4
Korea s)	228	222	196	102.6	116.4	29,318	27,603	22,437	106.2	130.7
Japan s)	2,591	2,806	2,615	92.3	99.1	375,332	435,419	407,819	86.2	92.0
Syria and Lebanon	3,045	3,158	3,534	96.4	86.2	331,384	367,114	385,838	90.3	85.9
	60	79	99	76.0	60.8	4,575	6,085	7,315	75.2	62.5
TOTALS . . .	6,552	7,008	7,524	93.5	87.1	816,186	916,831	945,516	89.0	86.3

* Countries not included in the total. — s) Spring cocoons. — t) Summer-autumn cocoons.

In Spain the weather was almost consistently favourable and a crop of good quality is expected; yields per ounce are considered to be above those of 1931 and output may be larger than that of the preceding year, which was, however, with about 1,160,000 pounds of cocoons one of the lowest obtained (average 1926-30 almost 1,940,000 pounds). From Greece also it is reported that in the most important sericultural areas the season has been very good and the silkworms have had abundant sound food; private estimates indicate that the number of boxes of eggs used has been considerably inferior to that in 1931 but that yields are higher. Incubations have been more favorable and weather better in Bulgaria and an output rather higher than in 1931 is expected. In the other minor silk-producing countries (Hungary, Yugoslavia and Rumania) the situation is more or less satisfactory save in some where the prolonged winter cold caused serious delay in rearings.

In the Levant also the depressed state of the international silk market has affected the quantities incubated, which are, especially in Syria and Lebanon, smaller than last year; this contraction has however been in some cases more or less compensated for by the high unit-yields. According to reliable sources the season has been favourable in Turkey and Persia and the prospects are considerably better than in 1931.

As regards the Far East it is to be noted that in Japan the quantity of eggs employed for both spring and summer-autumn rearings was below that of last year and the mean. This reduced incubation and the adverse weather conditions, which first hindered vegetation of the mulberries and then favoured diseases in the silkworms have together resulted in a total production 12 % below that of last year and 11 % below the 1926-30 mean; this year's yield is 125 pounds of cocoons for each ounce of eggs incubated against 134 last year and the mean of 129 pounds. Measures in favour of rearers in the form of subsidies to facilitate cooperative cocoon stores are announced. In Korea it is considered that the reason has been favourable and that the quantities of eggs incubated and of cocoons produced are slightly greater than last year and very much above the quinquennial mean.

A precise estimate of world production of fresh cocoons in the current season is for the time being impossible; as an approximation, however, taking into account all the available facts, production may be taken as between 860 and 880 million pounds, while last year rearings were about 1,000 million and the 1926-30 mean was 1,015 million; the production of China, generally estimated to be much larger than 1,100 million pounds of cocoons and that of India, which fluctuates around 45 million, are not included.

M. C.

FODDER CROPS

In Europe, the weather during October was mild with sufficient precipitation; in many areas the latter was even heavy. These weather conditions were favourable particularly to the meadows and pastures and prolonged the period of grazing of livestock, which could still find sufficient feed. In a few areas, heavy precipitation hindered the harvesting of fodder roots.

In the United States rainfall at the end of October and in the first few days of November considerably improved the pastures in a considerable part of the country but in some southern and southwestern areas rainfall was inadequate.

In Argentina rains during the first half of October improved the crop condition of fodder plants.

* * *

Germany: Thanks to the mild weather of autumn pastures could still be utilized throughout October.

Austria: In the second half of October consequent on the rains, condition of mangolds was greatly ameliorated; those sown on stubble are particularly well developed.

At the beginning of November the condition of temporary and permanent meadows was, as may be seen from the following details, much better than at the beginning of October. On 1 November crop condition was as follows : mangolds 2.7 (against 2.9 on 1 October this year and 2.6 on 1 November 1931) ; red clover 2.5 (2.8, 2.8) ; alfalfa 2.8 (3.2, 2.6) ; mixed clover 2.6 (3.0, 2.7) ; permanent meadows 2.5 (2.9, 2.8) ; pasture 2.9 (3.3, 3.2).

Production of the principal fodder crops with comparative figures for last year and 1926-30 is as follows :

CROPS		1932				1931	Average
		First cut	Second cut	Third cut	Total	Total	1926-30 Total
	Thousands of						
Mangolds	(centals).	—	—	—	48,960	48,740	46,833
	(sh. tons)	—	—	—	2,448	2,437	2,342
Red clover	(centals).	5,225	4,167	3,131	12,523	13,043	16,484
	(sh. tons)	261	208	157	626	652	824
Alfalfa	(centals).	1,720	1,433	1,036	4,189	3,120	4,094
	(sh. tons)	86	72	52	210	156	205
Mixed clover	(centals).	2,161	2,183	1,742	6,086	4,760	5,157
	(sh. tons)	108	109	87	304	238	258
Permanent meadows with one or more cuts	(centals).	59,635	9,590	1,764	70,989	63,487	73,595
	(sh. tons)	2,982	480	88	3,550	3,174	3,680

Belgium : The pastures remain green and still furnish appreciable feed.

Irish Free State : October was dry during the first two weeks and unsettled afterwards, with some heavy showers. Hay and straw were saved in good condition and the bulk of the mangel crop lifted satisfactorily. Turnips made satisfactory progress and indicated average yields.

France : Production of summer-autumn fodder seeds — purple clover, black medick (*Medicago lupulina*) and double sanfoin — is, according to the first threshing results, rather abundant and above the average.

Great Britain and Northern Ireland : Throughout October the weather was wet in Scotland and Northern Ireland and in the western half of England and Wales and in the latter part of the month storms and heavy rain were experienced throughout the area. From Northern Ireland ground frosts and some snow are reported. Grass is reported to be still plentiful in England and Wales while in Northern Ireland the normal seasonal decrease in quantity and quality has occurred.

Throughout the area there was improvement in root crops. Mangolds in England and Wales were of fair size and quality and though lifting was hindered in some parts by the weather conditions, satisfactory progress was generally made; production is estimated at about 93,766,000 centals (4,688,000 short tons) against 101,315,000 (5,066,000) in 1931, a decrease of 15 %, and 131,941,000 (6,597,000) in 1926-30, a decrease of 29 %. Crop condition of mangolds in Scotland on 1 November was 100 against 90 on the same date last year. In Northern Ireland lifting was in progress and a satisfactory yield was expected.

Turnips and swedes in England and Wales, are estimated at 168,605,000 centals (8,430,000 short tons) against 156,330,000 (7,816,000) in 1931, an increase of 8 %, and 205,176,000 (10,259,000) in 1926-30, a decrease of 18 %. In Scotland the condition of the crop on 1 November was 95 against 90 on 1 November 1931; in eastern districts it is stated to be more seriously affected by canker and finger-and-toe than was suspected, though elsewhere it is generally sound and healthy. In Northern Ireland the crop made considerable progress in October and was promising.

Hungary : On 25 October lifting of mangolds was in progress. The roots are generally small but are sound. Production is average.

The first and second cuts of clover and alfalfa were average but the third and fourth were poor. Production of clover and alfalfa seed is rather small. Due to the drought new sowings of legumes developed rather unsatisfactorily.

On other temporary meadows maize for green fodder, vetches and moha have already been harvested.

Vegetation of permanent meadows after the first cut was poor. The recent rains brought some improvement so that utilization for pasture is possible. The condition of pasturages properly called has also improved somewhat but they cannot provide sufficient grass to feed stock.

Italy : The sowing of autumn-winter catch crops and fodder crops continued during October; the seasonal watering of irrigated meadows has been effected. Catch crops have yielded well.

Fodder production may everywhere be considered sufficient for the needs of livestock.

Lithuania : Production of clover in 1932 was 29,115,000 centals (1,456,000 short tons) against 28,248,000 (1,412,000) in 1931 and 31,029,000 (1,551,000) the average of 1926-30; 103.1 % and 93.8 %. The corresponding figures for hay from permanent meadows are : 33,202,000 (1,660,000), 30,094,000 (1,505,000) and 32,931,000 (1,647,000); 110.3 % and 100.8 %.

Netherlands : Yields of pasture grass have been compromised by excessive moisture.

Poland : At the end of October condition of clover in the system of the country was 3.4 as at the same date last year.

Switzerland : The aftermath this year has generally been satisfactory as regards both quantity and quality. Yield of autumn pastures has also been good, the more so thanks to the mild temperatures, and has all been utilized profitably. In any case the commencement of dry feeding will be much later than last autumn.

Czechoslovakia : The provisional data of area and production of the principal fodder crops in 1932 with the definitive data for 1931 and 1930 for comparison are given in the following table. It should be noted that 1931 was a bad year and 1930 normal.

CROPS	AREA (000 acres)			PRODUCTION					
	1932	1931	1930	(000 centals)			(000 sh. tons)		
				1932	1931	1930	1932	1931	1930
Vetches	39	45	59	a) 558	468	443	28	23	22
Clovers	1,862	1,838	1,981	b) 693	630	869	35	32	43
Green fodder	320	337	285	74,493	65,570	73,019	3,725	3,278	3,651
Temporary meadows	83	86	126	9,621	8,407	7,733	481	420	387
Permanent meadows	3,161	3,163	3,166	2,874	3,039	4,443	144	152	222
Mixtures of legumes and grasses for seed.	126	138	104	108,688	113,364	112,029	5,434	5,668	5,601
Straw of legumes and mixtures for feed	226	246	219	a) 2,120	1,797	1,367	106	90	68
Cereal straw (barley, oats, millet and buckwheat) for feed	3,791	3,820	3,709	b) 2,708	2,521	2,008	135	126	100
Cereal straw (wheat, rye, meslin and spelt) for litter.	4,654	4,539	4,576	4,402	3,984	3,669	220	199	183
				87,881	69,538	81,173	4,394	3,477	4,059
				135,159	95,559	132,271	6,758	4,778	6,613

a) seed; — b) straw.

Argentina: The rains in the first half of October improved crop condition. In Santa Fé and Entre-Rios locusts caused serious losses.

Canada: The November estimates of area and production of fodder crops compared with the final figures for last year and the average are as follows:

	1932	1931	Average 1926-1930	% 1932 1931=100	Average = 100
<i>Area:</i>					
(thousand acres)					
Turnips, etc.	168	151	206	111.3	81.6
Fodder maize	360	336	453	107.1	79.5
Hay and clover	9,082	8,532	10,248	106.4	88.6
Alfalfa	662	557	829	118.8	79.9
<i>Production:</i>					
Turnips, etc. (000 centals) . . .	35,847	29,392	38,480	122.0	93.2
(000 sh. tons) . . .	1,792	1,470	1,924		
Fodder maize (000 centals) . . .	56,520	57,672	74,007	98.0	76.4
(000 sh. tons) . . .	2,826	2,884	3,700		
Hay and clover (000 centals) . . .	273,640	279,200	320,692	98.0	85.3
(000 sh. tons) . . .	13,682	13,960	16,035		
Alfalfa (000 centals) . . .	35,140	27,760	38,812	126.6	90.5
(000 sh. tons) . . .	1,757	1,388	1,941		

Although the areas and productions of the above fodder crops still remain well below the five year average, the areas are larger than last year and production of turnips, etc. and alfalfa has also increased.

United States : Pastures showed considerable improvement in the week ended on November 2 in most sections east of the Mississippi River but rain would have been beneficial in parts of the South and Southwest.

Palestine : The first sowing of bersim in irrigated areas of Beisan is well forward. Ploughing of vetch and oats for forage is in progress.

Algeria : The bersim crop seems to have been extended in some areas. Development of this crop as well as of fodder barley, is good.

Egypt : Sowing of early-sown bersim in Lower Egypt and in the irrigated lands of Upper Egypt is over. With a view to emptying the basins early this year, considerable areas have already been sown. Germination and growth are satisfactory.

LIVESTOCK AND DERIVATIVES

Livestock in Estonia.

In the following table are given the numbers of livestock in Estonia during the last eight years.

YEAR	Horses	Cattle		Sheep	Pigs	Poultry over 6 months		Beehives
		Total	Cows			Total	Hens	
1932 . . .	208,240	692,310	436,120	514,420	302,890	1,190,000	1,003,720	51,160
1931 . . .	206,790	668,940	428,130	478,550	322,750	1,113,160	937,110	49,140
1930 . . .	204,193	627,219	415,897	467,226	290,029	1,059,870	884,562	47,800
1929 . . .	205,448	603,949	406,562	475,035	279,080	1,022,709	853,309	47,972
1928 . . .	227,540	650,540	403,850	658,600	326,930	865,590	725,880	49,150
1927 . . .	229,530	633,870	386,680	666,650	354,360	830,210	691,500	41,460
1926 . . .	226,360	599,120	379,780	665,970	333,150	797,620	662,030	37,310
1925 . . .	223,747	555,322	360,861	719,785	338,648	723,987	592,477	45,106

It is seen from this table that the number of horses, which attained a maximum in 1927, reached its lowest point in 1930, then again rose gradually during the following two years; the increase from 1931 to 1932 was very small (0.7 %) and the number in 1932 was 6.9 % below that of 1925.

The number of cattle reached the highest level in 1928, fell sharply in 1929 and again increased in the following years; the increase in the total number of cattle in 1932 was 3.5 % compared with 1931 and 24.7 % compared with 1925. The increase in the number of calves in 1932 compared with 1925 was smaller (20.9 %).

The number of sheep, which has shown a large and practically constant decrease since 1925, recovered slightly in 1931 and to a greater extent in 1932, the increase being 7.5 % on 1931. The number of sheep in 1931 however, is still 28.5 % below that of 1925.

The number of pigs has fluctuated fairly considerably during the last eight years. After a maximum in 1927, followed by a minimum in 1929 and a recovery in 1930 and 1931 there was a decrease of 6.2 % from 1931 to 1932, the present number representing only 89.4 % of that recorded in 1925.

The number of poultry has shown marked progress and continued its uninterrupted increase, the total number now exceeding that of 1925 by 64.4 %; for hens alone the increase is still larger (69.4 %).

The number of beehives has increased almost without interruption and is 13.4 % larger than in 1925.

Livestock in Hungary.

In the following table are given the principal results for 1932 of the annual spring enumeration of livestock carried out on 31 March (according to § 23 of the article of law XII of 1894) on the occasion of the veterinary inspection; comparisons are made with the corresponding data for the five preceding years and for 1911 (present territory).

CLASSIFICATION	1932	1931	1930	1929	1928	1927	1911
<i>Cattle</i>	1,812,917	1,807,429	1,777,886	1,812,376	1,804,575	1,798,551	1) 2,149,756
of which: cows	906,127	902,680	904,745	913,542	906,763	906,934	—
<i>Buffaloes</i>	5,917	5,465	6,747	6,978	7,072	6,887	—
of which: cows	1,485	1,486	1,655	1,637	1,549	1,449	—
<i>Horses</i>	845,548	864,571	860,379	892,131	917,974	903,326	896,498
of which:							
mares over 3 years old	435,742	446,207	432,589	441,081	445,375	434,822	—
mares under 3 years old	56,963	60,239	73,068	85,672	97,883	102,793	—
adult geldings	287,529	289,695	272,339	267,886	262,585	248,815	—
<i>Asses</i>	3,991	4,291	4,294	4,485	4,690	4,784	7,994
<i>Mules</i>	1,059	1,109	1,242	1,386	1,539	1,657	424
<i>Sheep</i>	1,210,491	1,440,409	1,463,834	1,573,180	1,566,451	1,610,716	2,406,041
of which:							
ewes over 1 year old	739,531	855,136	880,018	919,085	924,647	963,440	—
ewes under 1 year old	163,056	196,384	184,472	221,957	218,704	213,922	—
wethers over 1 year old	150,590	185,480	211,282	223,795	208,622	214,145	—
<i>Goats</i>	22,749	24,027	22,184	23,793	29,836	36,418	20,647
<i>Pigs</i>	2,361,195	2,714,635	2,361,566	2,582,255	2,661,539	2,386,664	3,322,407
of which:							
sows over 1 year old for fattening	439,129	494,490	438,073	505,770	523,648	483,050	—
sows over 1 year old for meat	79,712	77,330	58,695	48,661	55,553	47,614	—
sows under 1 year old for fattening	564,775	678,252	598,790	701,586	744,943	663,420	—
sows under 1 year old for meat	129,711	123,831	88,757	77,439	81,426	65,474	—
castrated pigs over 1 year old	217,911	237,289	255,664	268,457	230,142	228,349	—
castrated pigs under 1 year old for fattening	547,250	688,422	591,845	650,301	650,943	576,170	—
castrated pigs under 1 year old for meat	153,215	140,426	105,545	81,813	81,155	69,477	—

1) Including buffaloes.

With the exception of cattle all species showed a decrease in 1932. Though the increase in cattle is only 0.3 % on the 1931 figure it should be noted that the 1932 figure is the highest since 1926. The increase is due in great part to that in cows, which made up 49.9 % of the total in 1932. This circumstance and the fact that the number of heifers under two years of age also increased permits the expectation that the number of cattle will in the near future be maintained at least at the present level. The same conclusion is reached when it is considered that rearers are beginning to pay great attention to the use of oxen for agricultural work in place of tractors, which are too costly.

The number of horses in 1932 is, with the exception of 1928, the lowest since 1926; with respect to 1931 the decrease is 2.2 %; all age-groups save colts under three years old, which have a relatively small importance (3.6 % of all horses in 1932), have contributed to this decrease. The responsibility for the unsatisfactory situation of horse-rearing is considered to rest in great part on the fall in exports and the poor sales of horses in Hungary.

The decline in sheep with respect to 1931 (16.0 % is also fairly considerable; all age-groups have contributed to it. As regards future prospects particular attention should be directed to the fact that the two most important age-groups both numerically and from the breeding point of view, ewes over one year old and ewes under one year, have declined by 13.5 % and 17.0 % respectively.

Following on the attainment by pigs in 1931 of the maximum for recent years a decline is now reported in numbers, which have returned to the 1930 level. It is interesting to note that the groups that have shown the greatest resistance to regression are those of animals reared for meat. The large decline of 13.0 % is due principally to difficulties of all sorts in the export of pigs and of pork to the usual markets and also to the poor production of maize and potatoes in 1931.

Livestock in Poland.

The preliminary results (which, according to the Central Bureau of Statistics can hardly differ much from the final data to be published later) of the 1932 count of livestock, show the following changes in the numbers of livestock compared with the preceding three years.

Examining the data for the period considered it is seen that during the years 1929 to 1931 there took place a constant increase for all kinds and that the year 1931 represents the high point in the increase in the number of livestock in Poland. The increase is particularly accentuated in the case of pigs but to appreciate its exact significance it is necessary to take into account the fact that the figure for 1929 is low compared with the census data of 30 November 1927 (6,333,000) and that the decrease recorded in 1927 was due partly to the unfavourable situation on the pig rearing market and partly to the exceptionally rigorous winter as well as to disease, which caused large losses of pigs.

CLASSIFICATION	30-VI-1932	30-VI-1931	30-VI-1930	30-VI-1929
<i>Horses :</i>				
<i>Total . . .</i>	3,938,455	4,123,545	4,102,651	4,046,734
under one year old	192,031	283,165	284,216	279,463
one year old and under three	326,388	312,801	288,868	288,129
three years old and under four	255,655	273,761	263,581	290,024
four years old and over	3,164,381	3,253,818	3,265,986	3,189,118
<i>Cattle :</i>				
<i>Total . . .</i>	9,457,265	9,786,389	9,399,516	9,056,749
under one year old	1,257,814	1,578,525	1,499,530	1,414,124
one year old and under three	1,998,267	2,058,367	2,061,908	2,123,143
of which :				
young bulls and young steers	276,179	309,597	314,979	272,178
heifers	1,201,387	1,190,367	1,213,338	1,230,184
cows	520,701	558,403	533,591	620,781
three years old and over	6,201,184	6,149,497	5,838,078	5,519,482
of which :				
bulls	55,067	58,792	55,515	51,663
oxen	95,513	98,399	124,688	120,119
cows	6,050,604	5,992,306	5,657,875	5,347,700
<i>Pigs :</i>				
<i>Total . . .</i>	5,840,555	7,320,898	6,047,250	4,828,641
under six months old	2,781,404	3,754,247	3,155,641	2,300,224
six months old and under ten	1,459,170	1,784,643	1,380,471	1,185,472
ten months old and over	1,600,081	1,782,008	1,511,138	1,342,945
<i>Sheep :</i>				
<i>Total . . .</i>	2,484,820	2,598,621	2,492,101	2,523,493
under one year old	1,029,685	1,085,550	1,017,985	951,537
one year old and over	1,455,135	1,513,071	1,474,116	1,571,956
<i>Goats :</i>				
<i>Total . . .</i>	247,506	237,412	226,780	...
under one year old	75,827	75,478	74,497	...
one year old and over	171,679	160,934	152,283	...

1) Including goats.

The year 1932 was one of crisis for stockrearing in Poland. In fact the data for 1932 compared with those for 1931 show an increase (4.3 %) only in the case of goats while all other kinds have decreased in number considerably: 20.2 % for pigs, 4.5 % for horses, 3.4 % for cattle and 4.4 % for sheep. These decreases are due largely to decreases in the numbers of young animals for each of the kinds considered, that is, for horses, cattle and sheep under one year old and for young pigs under six months old.

The fall in young animals was 32.2 % for horses, 25.9 % for pigs, 20.3 % for cattle and 5.1 % for sheep. The number of goats under one year old fell by only 0.9 %.

It is of interest to note that the total number of cows increased sensibly from 1929 to 1931 but remained practically the same in 1932 as in the preceding year (an increase of only 0.3 %). However, while the number of cows three years old and over rose by 1 % that of cows under three years old fell (—6.8 %). Heifers show a slight increase (+ 0.9 %).

Livestock in Kenya.

The following table shows the number of livestock owned by Europeans during the last five years.

CLASSIFICATION	1932 1)	1931 1)	1930 2)	1929 2)	1928 2)
Cattle	248,279	236,895	226,861	218,390	216,961
of which :					
Breeding stock	147,095	135,530	129,311	115,777	110,796
Other cattle	101,184	101,365	97,550	102,613	106,165
Horses	2,196	2,265	2,265	2,288	2,172
Mules	442	492	548	632	709
Donkeys	974	951	1,225	1,235	1,238
Sheep	235,207	246,352	230,945	235,498	196,869
of which :					
Wool-bearing sheep	202,456	218,845	207,237	210,912	176,261
Native sheep	32,751	27,507	23,708	24,586	20,608
Goats	2,312	2,972	2,840	3,926	3,211
Pigs	13,760	15,230	17,370	17,746	18,152
of which :					
Breeding sows	2,499	2,691	2,738	3,108	3,455
Other pigs	11,261	12,539	14,632	14,638	14,697
Poultry	62,629	49,183	44,844	35,786	38,845

1) End of February. — 2) End of July.

The total number of cattle in the possession of Europeans as at 29 February 1932 shows an increase of 4.8 % over the figure for the previous year. The increase extended to all classes of breeding cattle; working oxen, on the other hand, again showed a slight decrease (from 69,793 in 1931 to 68,025 in the present year), not so great as might have been expected, having regard to the reduction in the area of land under cultivation, but the change back from mechanical power to draught oxen has influenced the position materially.

The total number of pure-bred stock showed a decline in the year, but this decline was not of any real significance, since it was entirely accounted for by a decrease in the number of bull calves. Pure-bred cows and heifers over one year, and pure-bred bulls, showed a combined increase of 23 %.

Wool-bearing sheep decreased by 7.5 % during the year, but it is to be noted that the 1931 figure was a record one. Native sheep on European farms increased by 19.1 %. The number of pigs, which has declined since the record year 1928, shows a further drop of 1,470 from the previous year's figure. The decline affects not only breeding sows but all other pigs.

Slight increases in the number of horses and mules were recorded, while the number of donkeys also increased.

The poultry industry has continued to expand: an increase of 27.2 % in the number of birds in the year under review followed one of 9.7 % in 1931 and one of 25.3 % in 1930.

New Zealand Dairy Production in 1931-32.

A new record for butter production was established in the season that ended in July despite the less favourable market conditions. Total production in 1931-32 exceeded $2\frac{1}{4}$ million pounds and was thus 7.4 % above that of the previous season. Throughout the year production was maintained at a high level and only in September and February did the monthly output fall below that recorded for the corresponding months of 1930-31. New Zealand, with a total export of 220,814,000 pounds in 1931, is the second butter-exporting country in the world. Exports are for by far the greater part directed to the United Kingdom. Prices on the London market in 1931-32 were not remunerative. On the basis of prices in the last week of each month the highest level reached was 116s. to 120s. per cwt. salted butter in September 1931 against 124s. to 128s. in August and September 1930, the highest level of the previous season ; the lowest level was 96s. to 98s. per cwt. in December 1931 and May and June 1932 against 98s. to 104s. in November 1930, the lowest of the previous season.

As regards cheese the 1931-32 season closed on a level almost equal to the previous season's record. The season began with an output in August 1931 less than that of August 1930 by 63 % but this disparity was greatly diminished in succeeding months and after April a rapidly increasing excess was recorded, the output for July 1932 being 70.5 % in excess of that for July 1931 and constituting a record for the month. The relatively small output in the earlier part of the season is attributed to the standardization policy introduced in the closing months of 1930-31, which caused many cheese-producing factories to concentrate almost solely on butter; the abandonment of standardization had no doubt some influence on the revival of production in the latter part of the season. The prices on the London market in the last week of each month (expressed as the range between the lowest received for white to the highest received for coloured) reached their maximum for the season in October 1931 with 68s. to 69s. per cwt. against the 71s. to 78s. in August 1930 and 73s. to 75s. in September 1930; the minimum of 54s. to 56s. was reached in December 1931, against 50s. to 54s. in April 1931, the minimum of the previous season. On the whole conditions on the cheese market showed an improvement. With a total export of 181,703,000 pounds in 1931, New Zealand took second rank as a cheese-exporting country.

Expressed in terms of total butter-fat production the dairy industry in 1931-32 exceeded the 1930-31 record by 3.3 %.

The 1932-33 season began well with a new record for butter output in August, the quantity received into grading stores having been 15.7 % greater than the 1931-32 record. On the other hand output of cheese in August was considerably below that in July, though still 79.5 % above that in August 1931. Total butterfat production for the month exceeded that for August 1931 by as much as 19.6 %.

Condition of Livestock and Dairy Production.

Irish Free State : Ample supplies of feed for the winter are on hand or in sight. Milk yields underwent the usual seasonal decline in October but were otherwise up to the average.

France : Stock is in good condition in all regions despite some attacks of foot-and-mouth disease in the Centre. Lack of sales has resulted in heavily populated pastures and cattlesheds ; many rearers have kept their animals later than usual but are unable to feed them during the winter and must sell them even though prices are the lowest since the war.

Great Britain and Northern Ireland : The outlook for winter keep is good. Supplies of hay are generally abundant and of good quality. In Scotland concentrated foods were reported to be more plentiful and their prices, though still high in comparison with those of home-grown grain, tending lower.

In Northern Ireland condition and health of store cattle are generally good. Dairy cattle are also in good condition.

Milk yields were maintained in England and Wales, fell off considerably in Scotland and were normal for the season in Northern Ireland.

Netherlands : Purchases of concentrated feed have diminished owing to the general economic conditions but there is adequate hay and silage.

Milk production has been normal in Drenthe, Overijssel and Groningen, has increased in North Brabant and is below average in the other provinces.

Switzerland : In recent months there has been a visible diminution in pig fattening. According to an enquiry of the *Union suisse des paysans* on 1 November the numbers of pigs have changed as follows with respect to those on 1 July 1932 : breeding stock about 11 %, hogs up to two months old about -7 %, young pigs over two months little change, pigs for fattening about -4 %. One of the reasons for the decrease is the long-continued extraordinarily low prices, which lead to expectations of a still further decrease. The decrease has already had repercussions on the market. Prices, indeed, can be maintained only if the numbers of pigs for fattening are further reduced. The rise in pig prices has already influenced prices of calves. The demand for cows and beef cattle has even improved somewhat and rearers hope that there will be a revival in the demand for breeding cattle and consequently in prices.

Argentina : Health is satisfactory throughout the country.

Canada : In the following table is given the total production of milk in Canada and data of the quantities of milk converted into factory or home-made butter or cheese together with the actual production of the latter products.

A relatively large decrease in milk production took place in 1931 compared with recent years. This reduction corresponded to decreases in the production of factory cheese and miscellaneous factory products and also to a large drop in the quantity of milk consumed fresh. The tendency noted in the last few years to increased production of both factory and home-made butter and home-made cheese, however, continued in 1931.

PRODUCTS	1931	1930	1929	1928	1927
	(000 lb.)				
Milk production	13,817,164	14,759,657	14,349,023	14,512,898	14,825,821
Milk made into butter (in factories)	5,289,612	4,348,431	3,998,667	3,933,513	4,143,077
" " " (home made)	2,449,623	2,259,065	2,060,080	2,106,900	2,223,950
" " " cheese (in factories)	1,276,315	1,333,977	1,329,959	1,619,348	1,546,237
" " " (home made)	10,095	9,475	5,490	4,873	4,653
" " " miscellaneous factory products	253,382	310,608	307,725	296,254	287,417
consumed fresh or otherwise used	4,538,137	6,498,101	6,647,102	6,552,010	6,620,487
Butter produced (in all factories)	225,955	185,751	170,810	168,027	176,979
" " (home made)	104,640	96,500	88,000	90,000	95,000
Cheese " (in all factories)	113,957	119,105	118,746	144,585	138,057
" " (home made)	901	846	490	435	415

United States : For the three months July to September, shipments into the Corn Belt States were about 8 % larger than last year and about 5 % larger than the five-year average for the period, the increase being chiefly into the five States east of the Mississippi River. Shipments of feeder steers weighing 900 lbs. and over were the largest in the last six years. Compared with last year, the proportion of medium and light weight steers and of cows and heifers decreased but that of calves increased. The net result was an increase in shipments of feeder cattle despite a reduction in market supplies, the latter consisting chiefly of cows and heifers. The financing of feeding operations should not be a limiting factor for the remainder of the year as funds are now available from the Regional Agricultural Corporation set up by the Reconstruction Finance Corporation.

Shipments of feeder lambs into the Corn Belt States for the three months July to September were only 53 % of those in the corresponding period of last year and were the smallest for the period in at least fourteen years. Direct shipments are not expected to be large enough to offset the decrease in the shipments through markets and lamb feeding in the Corn Belt is anticipated to be on a greatly reduced scale.

Slaughter estimates based on the ten-year average 1922-1931 for the six months May to October also indicate a relatively large slaughter for the post-war period.

According to the annual turkey crop report published by the Department of Agriculture on October 24, the number of turkeys on farms on October 1 this year was about 13 % larger than at that date in 1931 and the 1932 crop was one of the largest ever raised in the country. The increase was general in all regions and in nearly all States. Cold storage holdings of turkeys on October 1 were smaller than a year earlier.

While conditions during the spring months were generally unfavourable, the summer and autumn were very favourable for raising and reports indicate that the condition of the birds on about October 1 was as good or better than on October 1 last year, when it was reported as unusually good.

Some feeding of livestock was necessary in the week ended on November 2 in the northern Great Plains and Rocky Mountain region but the lower range was open and livestock apparently weathered the recent storms in good condition. The dry autumn caused some feed shortage in parts of the Pacific Northwest; in most other areas in the West, except the Southwest, where rain was needed, conditions were largely satisfactory.

Palestine : With the exception of the Beersheba area, rains were general at the beginning and the end of October, resulting in a material improvement in the grazing situation owing to early growth of grasses and shrubs, and stock have also benefited from increased water supplies.

Algeria : Flocks, which at the end of October were still finding fairly plentiful though rather poor pasture, are in good condition. Exports were much reduced in the latter half of October.

The flocks, which left the stubble for the pastures, now sufficiently covered, at the beginning of November, are in good condition.

French Morocco : Livestock suffered from drought during October and condition of the animals ceased to be very satisfactory.

Union of South Africa : The prolonged drought in the inland areas was largely broken by excellent rains during the latter half of September. Beneficial rains have been reported throughout the Karroo and the Eastern Province and crops, stock and grazing have made a remarkable recovery in the previously drought-stricken districts south of Basutoland. Good rains have also fallen in the southern Free State, in the Natal highveld and the Eastern Transvaal highveld. Some serious losses have occurred amongst shorn sheep through exposure. In the northern Free State, in the western and northern Transvaal, in Bechuanaland and in many of the west coast districts, however, the drought had not been broken by the end of the month.

New Zealand (Telegram of 12 November) : The 1932-33 wool clip is estimated at 197 million pounds. This is 5 % less than the estimate of 206.5 million pounds received at the corresponding date last year for the 1931-32 clip.

LATEST INFORMATION

Germany : The German Government has communicated to the Institute the final estimates of cereal production in 1932 which are given below and confirm, with only slight modifications, those already published in the general table :

	centals	bushels
Wheat.	110,300,000	183,829,000
Rye	18,438,000	329,262,000
Barley.	70,872,000	147,653,000
Oats	146,612,000	458,160,000

Yugoslavia : According to the definitive estimates, the harvesting areas and the productions of cereals during 1932 are as follow :

	Area	Production	
	(acres)	(centals)	(bushels)
Winter wheat	4,718,136	31,469,028	52,447,332
Spring wheat	101,784	598,019	996,679
Winter rye	498,552	4,050,335	7,232,761
Spring rye	101,824	613,209	1,095,019
Winter barley	583,195	5,406,771	11,264,305
Spring barley	422,556	3,224,664	6,718,168
Oats	809,574	5,935,486	18,548,261
Maize	(1) 6,442,403	(2) 99,946,395	(2) 177,940,475
Meslin	124,185	994,835	1,715,252
Spelt	40,491	250,845	—
Colza	8,604	39,897	79,793

In comparison with the August estimate the production of wheat shows a diminution of 6.8 million centals (11.4 million bushels) while the production of other cereals remains almost unchanged.

Japan : The most recent estimate of 1932 wheat production is 18,802,000 centals (31,336,000 bushels) and that of barley 37,316,000 (77,744,000).

(1) Area sown.

(2) Provisional data.

TRADE

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-September 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931-32	1931-32

Wheat. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	84	844	0	0	251	1,080	0	0	5,688	0
Hungary	606	1,030	0	0	1,001	1,684	0	0	7,912	0
Lithuania	0	0	0	0	0	0	0	0	20	0
Poland	15	71	64	37	24	123	64	40	1,598	346
Rumania	7	7,480	0	0	29	11,435	0	0	21,202	7
U. S. S. R. . . . .	...	...	—	—	...	...	—	—	39,423	—
Yugoslavia	75	1,023	0	0	201	3,633	0	0	8,796	0
Canada	16,125	8,602	2	9	27,099	15,748	9	20	109,685	75
United States	1,488	5,038	353	657	3,827	10,384	650	1,466	52,805	7,361
Argentina	1,951	3,047	—	—	4,191	6,830	—	—	81,435	—
Chile . . . . .	...	...	...	...	130	37	...	...	9	0
Turkey	7	22	0	0	9	31	...	...	913	0
Algeria	642	357	29	119	2,011	756	90	300	4,837	1,462
Tunis	492	328	40	31	1,213	1,082	60	60	5,337	401
Australia	2,989	2,928	0	0	4,310	6,539	0	0	73,793	0
<i>Importing Countries:</i>										
Germany	3,045	1,843	1,631	1,490	3,933	1,874	3,803	2,540	7,313	21,006
Austria	0	0	410	408	0	0	758	785	0	6,418
Belgium	205	600	1,766	2,985	421	1,087	3,730	5,743	3,587	31,478
Denmark	7	7	694	1,111	7	7	1,563	1,508	9	8,719
Spain	0	0	2,630	0	0	0	3,131	0	0	3,049
Estonia	0	0	0	29	0	0	0	68	0	256
Irish Free State	0	0	798	714	0	0	1,316	1,413	13	6,369
Finland	0	0	91	22	0	0	168	33	0	428
France	4	0	2,522	3,823	4	2	8,219	9,528	9	53,123
Gr. Brit. and N. Irel.	37	18	9,350	18,197	84	86	19,670	31,378	1,206	137,664
Greece	0	0	924	1,336	0	0	1,942	2,394	0	14,116
Italy	7	13	536	498	7	13	1,215	1,093	18	22,567
Latvia	0	0	2	57	0	0	13	101	0	575
Norway	0	0	302	115	0	0	443	238	0	3,294
Netherlands	192	9	1,202	1,812	194	15	2,471	2,747	110	16,817
Portugal	—	—	31	95	—	—	159	384	—	1,393
Sweden	7	0	265	185	7	0	774	386	9	4,054
Switzerland	4	0	988	1,248	9	0	2,081	2,282	18	12,683
Czechoslovakia	0	0	106	1,285	0	0	333	2,255	4	13,199
India	4	4	0	0	7	95	0	179	183	179
Japan	—	—	694	725	—	—	1,098	1,459	—	17,070
Syria and Lebanon	68	168	20	0	110	203	37	0	511	328
Egypt . . . . .	...	...	...	...	...	...	...	...	2	994
Union of South Africa . . . . .	...	...	...	...	...	...	...	...	2	1,034
New Zealand . . . . .	...	...	...	...	...	...	...	...	0	258
Totals	28,061	33,432	25,450	36,991	49,079	62,744	54,024	68,419	426,447	386,723

Rye. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	15	295	0	0	24	397	0	0	990	0
Hungary	77	84	0	0	190	198	0	0	1,486	0
Lithuania	0	0	0	2	2	0	0	2	9	2
Poland	584	373	9	13	1,005	534	9	13	2,513	123
Rumania	0	406	0	0	9	642	0	0	1,676	0
U. S. S. R. . . . .	...	...	—	—	...	...	—	—	23,642	—
Canada	238	271	0	0	908	353	0	0	5,066	0
United States	0	9	—	—	0	13	—	—	622	—
Argentina	4	88	—	—	75	150	—	—	4,766	—
Turkey	40	42	0	0	66	86	0	0	690	0
Algeria	2	0	0	0	9	4	0	0	31	0
<i>Importing Countries:</i>										
Germany	403	432	809	293	831	454	2,141	368	2,046	12,103
Austria	0	0	13	82	0	0	90	168	0	1,728
Belgium	44	75	139	216	108	90	357	437	639	2,709
Denmark	0	0	622	633	0	0	1,340	1,098	0	4,731
Estonia	0	0	0	0	0	0	0	4	0	13
Finland	0	0	511	51	0	0	655	123	0	1,202
France	0	0	46	97	0	0	168	152	0	1,737
Italy	0	0	31	15	0	0	44	20	0	157
Latvia	0	0	0	18	0	0	0	31	0	99
Norway	0	0	298	238	0	0	346	536	—	3,415
Netherlands	7	68	348	538	13	115	864	937	331	4,405
Sweden	0	0	13	22	0	0	231	57	26	1,345
Switzerland	0	0	37	11	0	0	64	20	0	108
Czechoslovakia	0	2	18	507	2	2	82	785	7	5,124
Totals	1,414	2,145	2,894	2,736	3,242	3,038	6,391	4,751	44,540	39,001

1) 2) See notes page 797.

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-September 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931-32	1931-32
Wheat flour. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Germany	20	2	2	13	20	4	9	37	64	229
Belgium	7	7	9	7	9	11	20	18	73	51
Bulgaria	11	110	0	0	24	132	0	0	752	0
Spain	2	2	0	0	2	2	0	0	18	0
France	284	571	44	26	403	1,426	90	66	4,533	262
Hungary	146	154	0	0	207	249	0	0	2,130	0
Italy	448	137	13	22	933	262	31	40	2,218	287
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	2	0	0	0	4	4	0	0	26	0
Poland	18	64	0	0	33	88	0	0	511	4
Rumania	9	139	0	0	9	249	0	0	855	0
Yugoslavia	4	7	0	0	9	7	0	0	104	0
Canada	754	1,091	2	4	1,402	2,114	2	7	10,551	40
United States	728	1,389	0	0	1,543	2,643	0	0	15,091	0
Argentina	68	183	—	—	130	353	—	—	1,545	—
Chile	—	—	—	—	2	2	0	0	29	0
India	53	66	0	0	95	134	0	0	836	0
Turkey	0	0	0	0	0	0	0	2	11	4
Japan	439	293	2	15	758	540	2	24	3,470	106
Algeria	60	4	2	4	99	20	7	7	157	57
Tunis	15	11	0	0	33	40	2	2	146	20
Australia	948	2,524	0	0	1,645	3,371	0	0	13,995	0
<i>Importing Countries:</i>										
Austria	0	0	33	64	0	2	77	79	7	1,279
Denmark	2	2	55	126	4	4	128	231	13	1,290
Estonia	0	2	0	2	0	4	15	7	15	0
Irish Free State	0	0	150	317	0	7	518	617	26	4,045
Finland	0	0	110	172	0	0	227	342	0	1,596
Gr. Brit. and N. Irel.	390	397	593	1,063	880	789	1,351	1,967	5,628	11,224
Greece	0	0	2	9	0	0	7	18	0	66
Norway	0	0	86	104	0	0	157	269	11	1,358
Netherlands	2	4	62	71	11	7	126	174	71	723
Portugal	—	—	42	24	—	—	51	37	—	201
Sweden	0	0	0	4	0	0	4	7	0	37
Czechoslovakia	0	0	49	148	0	2	97	172	9	1,182
Ceylon	—	—	26	20	—	—	57	62	—	401
Java and Madura	—	—	—	—	—	—	79	93	—	1,138
Indo-China	—	—	—	—	—	—	31	26	—	388
Syria and Lebanon	0	22	9	33	4	29	35	66	93	397
Egypt	—	—	—	—	—	—	18	168	2	2,430
Union of South Africa	—	—	—	—	—	—	—	—	—	15
New Zealand	—	—	—	—	—	—	—	—	—	238
Totals	4,410	7,185	1,291	2,248	8,259	12,493	3,152	4,564	62,990	29,083

Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	31	139	0	0	53	207	0	0	406	0
Spain	0	2	0	0	2	4	0	0	15	0
Hungary	22	22	0	0	29	24	0	0	55	7
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland	437	395	0	0	538	408	0	0	3,146	0
Rumania	3,314	3,042	0	0	5,604	6,138	0	0	15,911	0
Czechoslovakia	437	115	0	0	567	119	0	0	2,112	2
U. S. S. R.	—	—	—	—	—	—	—	—	17,778	—
Canada	368	364	0	0	1,133	1,942	0	0	6,499	0
United States	434	322	—	—	891	794	—	—	2,524	—
Argentina	2	75	—	—	20	123	—	—	6,274	—
Chile	—	—	—	—	2	37	0	0	492	0
India	—	—	—	—	2	2	0	0	666	0
Syria and Lebanon	7	183	33	15	18	207	53	18	384	104
Turkey	132	187	0	0	287	324	0	0	2,996	0
Egypt	—	—	—	—	—	—	—	—	—	273
Tunis	340	7	7	60	924	106	13	88	820	556
Australia	4	18	0	0	11	90	0	0	1,614	0
<i>Importing Countries:</i>										
Germany	0	0	134	1,380	0	0	478	1,962	18	15,172
Austria	0	0	152	238	0	0	267	309	0	2,050
Belgium	154	75	785	1,001	293	146	1,323	1,530	1,676	9,396
Denmark	35	7	82	388	37	7	245	1,120	470	3,331
Estonia	—	—	0	0	—	—	0	0	—	0
Irish Free State	0	0	2	7	0	0	2	7	26	483
France	0	0	985	553	0	2	1,607	944	15	9,482
Gr. Brit. and N. Irel.	9	0	1,724	1,975	13	0	2,577	3,267	31	14,039
Greece	0	0	0	0	0	0	0	0	0	172
Italy	0	0	35	22	0	0	282	37	0	800
Latvia	0	0	0	0	0	0	0	2	0	4
Norway	0	0	9	93	0	0	9	93	0	794
Netherlands	2	9	732	961	2	15	1,276	1,638	262	9,112
Switzerland	0	0	320	174	0	0	478	269	2	2,989
Yugoslavia	0	4	0	20	0	9	0	20	13	37
Algeria	13	68	390	686	37	123	741	884	620	2,520
Totals	5,741	5,034	5,390	7,573	10,463	10,827	9,351	12,230	64,827	71,325

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-September 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931-32	1931-32
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Irish Free State . .	4	9	0	33	7	9	0	82	73	220
Hungary	0	0	0	0	0	0	0	0	7	2
Lithuania	0	0	0	0	0	0	0	0	20	0
Poland	4	2	0	0	7	4	0	0	62	0
Rumania	282	112	0	0	346	121	0	0	295	0
Czechoslovakia . .	201	57	0	4	306	75	0	49	884	57
Yugoslavia	0	0	0	0	0	0	0	0	2	0
Canada	357	236	79	108	631	492	187	165	4,628	655
United States . . .	128	101	0	0	485	172	0	0	891	22
Argentina	553	937	—	—	1,237	1,671	—	—	16,250	—
Chile	—	—	—	—	18	13	—	—	223	0
Algeria	9	9	2	121	22	9	11	190	273	584
Tunis	20	24	0	0	53	79	0	0	212	0
Australia	22	2	0	0	42	11	0	0	108	2
<i>Importing Countries:</i>										
Germany	0	0	11	20	0	0	15	115	9	223
Austria	0	0	86	90	0	0	157	181	0	1,462
Belgium	2	0	20	97	4	0	90	304	37	1,501
Denmark	7	7	26	73	7	11	37	179	66	474
Estonia	0	0	0	0	0	0	0	0	0	7
Finland	0	0	0	22	0	0	9	35	20	55
France	0	0	101	99	0	0	421	260	7	3,214
Gr. Brit. and N. Irel.	2	9	401	970	2	13	999	1,799	203	8,494
Italy	0	0	399	267	0	0	463	417	0	4,074
Latvia	0	0	0	2	0	0	0	2	0	7
Norway	0	0	4	22	0	0	11	62	2	273
Netherlands	0	4	154	260	0	9	320	346	44	2,381
Sweden	0	0	66	77	7	0	150	300	181	1,157
Switzerland	0	0	295	282	0	0	553	672	2	5,033
Totals	1,591	1,509	1,644	2,547	3,174	2,689	3,423	5,158	24,499	29,697
Maize. — Thousand centals (1 cental = 100 lb.).										
					ELEVEN MONTHS (November 1-September 30)				TWELVE MONTHS (Nov. 1-Oct. 31)	
<i>Exporting Countries:</i>										
Bulgaria	141	64	0	0	2,663	3,382	0	0	3,477	0
Rumania	1,894	886	0	0	32,415	17,518	2	2	18,638	2
Yugoslavia	2	40	0	2	1,550	6,400	26	9	6,420	24
United States . . .	148	55	9	4	2,044	1,202	207	516	1,314	520
Argentina	10,686	22,664	—	—	165,274	174,481	—	—	198,721	—
Brazil	—	—	—	—	—	18	—	—	18	—
Java and Madura . .	—	—	—	—	2,319	2,260	—	—	2,407	—
Indo-China	—	—	—	—	2,105	1,863	—	—	2,584	—
Syria and Lebanon .	0	4	2	0	7	157	35	49	159	49
Turkey	29	53	0	0	355	198	0	0	212	0
Egypt	—	—	—	—	11	4	44	139	4	298
Union of South Africa	1,393	977	0	0	3,821	2,185	0	0	3,298	0
<i>Importing Countries:</i>										
Germany	0	0	1,250	1,133	0	0	16,239	9,041	0	10,007
Austria	0	0	653	758	0	2	7,187	5,576	2	6,270
Belgium	57	88	1,618	2,134	1,268	791	17,641	15,655	955	17,075
Denmark	0	0	756	1,554	0	0	20,393	12,200	0	13,539
Spain	0	0	344	390	0	0	6,691	3,455	0	3,666
Irish Free State . .	0	0	1,254	1,146	0	26	12,639	10,523	26	12,044
Finland	0	0	84	84	0	0	531	302	0	355
France	0	0	2,787	2,994	26	37	23,526	20,446	40	23,755
Gr. Brit. and N. Irel.	218	198	6,206	4,967	2,952	2,163	58,674	46,258	2,407	53,281
Greece	0	0	13	13	0	0	3,373	364	0	373
Hungary	2	0	66	132	66	236	939	2,260	240	2,337
Italy	0	0	558	2,037	4	7	15,474	15,768	7	17,447
Norway	0	0	212	542	0	0	3,730	3,649	0	3,977
Netherlands	11	13	3,175	3,386	209	265	34,840	28,823	273	32,441
Poland	0	0	9	22	0	0	119	470	0	496
Portugal	—	—	190	137	—	—	1,290	1,470	—	1,605
Sweden	0	0	410	915	0	0	5,739	6,501	0	7,311
Switzerland	0	0	500	443	2	2	3,444	3,003	2	3,611
Czechoslovakia . .	0	0	271	1,045	0	2	9,764	11,413	2	13,115
Canada	0	0	174	317	13	9	3,459	3,975	9	4,760
Japan	—	—	2	126	—	—	1,693	1,565	—	1,689
Tunis	0	0	0	2	0	9	324	271	9	298
Totals	17,581	25,042	20,543	24,283	217,104	213,217	248,023	203,703	241,224	230,345

2) See notes page 797.

COUNTRIES	SEPTEMBER				NINE MONTHS (January 1-September 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	46	55	0	0	597	531	0	0	833	0
Italy	55	154	4	11	2,280	2,374	42	46	3,325	55
United States	104	93	7	7	2,033	1,867	137	265	2,771	328
Brazil	—	—	—	—	569	1,482	—	—	1,993	—
India	3,397	2,590	29	15	41,394	38,711	476	450	48,442	692
Indo-China	—	—	—	—	18,620	15,737	—	—	20,715	—
Siam	2,963	1,407	—	—	25,426	18,409	—	—	25,029	—
Egypt	—	—	—	—	185	525	708	302	686	833
<i>Importing Countries:</i>										
Germany	68	101	827	1,089	818	948	6,054	6,768	1,373	8,962
Austria	0	0	35	42	0	0	412	454	0	756
Belgium	11	22	37	137	168	134	915	1,069	190	1,349
Denmark	0	0	13	13	0	0	88	110	0	157
Estonia	—	—	0	2	—	—	13	26	—	33
Irish Free State	0	0	2	2	2	0	40	42	0	53
France	62	71	635	1,027	606	697	5,961	4,795	937	6,792
Gr. Brit. and N. Irel.	7	11	265	203	137	163	2,019	1,936	271	2,690
Greece	—	—	29	37	—	—	381	410	—	540
Hungary	0	0	55	9	0	2	317	337	2	481
Latvia	0	0	4	2	0	0	13	66	0	82
Lithuania	0	0	2	2	0	0	13	18	0	22
Norway	0	0	95	0	0	0	60	95	0	117
Netherlands	262	185	600	258	1,367	1,944	2,427	4,400	2,480	4,963
Poland	13	86	0	359	249	300	1,025	1,504	606	1,726
Portugal	—	—	64	55	—	—	683	688	—	613
Sweden	—	—	0	0	—	—	90	123	—	123
Switzerland	0	0	15	33	0	0	265	293	0	454
Czechoslovakia	0	0	82	60	0	0	820	778	0	1,127
Yugoslavia	0	0	22	46	2	2	342	575	4	511
Canada	0	0	22	11	9	0	520	569	0	710
Chile	—	—	—	—	—	—	161	399	—	441
Ceylon	0	0	653	840	2	15	8,069	7,763	18	10,196
Java and Madura	—	—	—	—	24	174	2,361	4,303	232	6,323
Japan	7	322	282	276	635	3,986	2,328	2,070	4,195	2,773
Syria and Lebanon	0	0	15	24	0	0	247	229	0	322
Turkey	0	0	7	20	0	0	66	146	0	183
Algeria	0	0	7	11	9	2	146	101	2	173
Tunis	0	0	0	4	0	0	31	26	0	31
Union of South Africa	—	—	—	—	—	—	489	664	0	1,023
Australia	9	9	2	4	68	104	33	24	161	29
New Zealand	—	—	—	—	—	—	46	55	0	73
Totals	7,004	5,106	3,784	4,601	95,200	88,107	37,798	41,899	114,265	55,744
Linseed. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Estonia	0	0	0	0	2	4	0	0	4	—
Lithuania	7	2	0	0	112	130	0	0	247	—
Argentina	4,323	3,042	—	—	33,954	33,169	—	—	41,681	—
India	148	154	0	0	1,272	1,834	0	0	2,520	0
Tunis	2	0	0	0	22	4	0	0	4	0
<i>Importing Countries:</i>										
Germany	2	0	919	417	13	9	7,198	5,981	13	7,507
Belgium	4	15	287	300	121	84	2,562	2,901	205	3,702
Denmark	—	—	31	13	—	—	379	337	—	417
Spain	—	—	37	33	—	—	402	333	—	465
Finland	0	0	9	4	0	0	42	51	0	68
France	0	0	340	414	4	13	3,688	4,169	18	5,814
Gr. Brit. and N. Irel.	0	0	655	615	2	4	6,246	5,750	4	7,599
Greece	0	0	15	11	0	0	60	71	0	95
Hungary	0	0	0	0	9	31	0	2	42	2
Italy	0	0	165	82	0	0	1,067	1,014	0	1,351
Latvia	0	0	0	7	20	55	40	73	106	90
Norway	0	0	44	0	0	0	293	234	0	289
Netherlands	2	2	1,105	710	73	46	7,555	7,244	49	9,255
Poland	0	0	7	7	2	7	139	269	7	273
Sweden	—	—	84	99	—	—	816	919	—	1,056
Czechoslovakia	0	2	101	84	2	4	536	454	7	582
Yugoslavia	0	0	13	7	0	0	84	115	0	126
Canada	0	0	0	9	2	483	256	26	584	194
United States	—	—	337	1,382	—	—	3,463	6,486	—	8,109
Japan	—	—	2	7	—	—	112	148	—	185
Australia	0	0	15	13	0	0	401	262	0	291
Totals	4,488	3,224	4,166	4,214	35,610	35,877	35,340	36,839	45,491	47,470

2) 3) See notes page 797.

COUNTRIES	SEPTEMBER				NINE MONTHS (January 1-September 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Butter. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Austria	205	439	15	22	692	1,872	796	1,534	2,862	1,565
Denmark	27,587	29,308	0	108	269,373	286,661	880	1,276	378,429	1,596
Estonia	3,153	3,997	0	0	22,300	25,172	0	0	31,844	10
Irish Free State	6,252	5,115	9	24	29,716	34,275	2,604	3,219	42,307	3,325
Finland	2,280	2,994	0	0	25,832	31,284	0	0	38,367	0
Hungary	498	655	0	0	3,042	1,922	0	117	4,065	117
Latvia	4,848	4,716	0	0	32,179	32,435	0	22	41,313	24
Lithuania	3,053	2,504	0	0	18,071	15,726	0	0	19,191	0
Norway	73	128	7	57	1,971	1,418	79	271	1,629	379
Netherlands	3,499	6,096	71	185	27,673	58,784	8,792	4,506	72,660	8,887
Poland	37	3,208	392	0	2,648	23,023	809	29	27,470	31
Sweden	2,780	3,470	2	9	23,276	34,375	24	15	43,162	40
U. S. S. R.	—	—	—	—	22,401	18,052	—	—	68,024	—
Argentina	2,590	1,768	—	—	39,414	30,699	—	—	51,132	—
India	13	29	42	22	170	254	311	245	366	344
Syria and Lebanon	31	313	161	29	214	1,506	1,484	220	1,817	344
Australia	15,792	30,494	—	0	142,406	142,384	—	0	208,924	0
New Zealand	7,390	11,720	—	—	152,461	149,018	—	—	220,814	—
<i>Importing Countries:</i>										
Germany	315	22	15,600	18,512	474	236	113,657	159,860	269	220,950
Belgium	123	260	2,310	3,785	1,759	2,057	36,041	29,648	2,756	41,562
Spain	2	9	0	0	37	75	26	42	88	121
France	745	1,193	414	1,984	5,822	7,665	15,882	34,963	11,036	40,836
Gr. Brit. and N. Irel.	545	1,993	78,469	66,880	31,740	26,462	713,409	677,564	40,228	903,967
Greece	—	—	82	174	—	—	911	1,343	—	2,059
Italy	33	42	35	174	730	1,186	3,380	4,808	1,268	6,177
Switzerland	0	2	15	1,887	4	9	6,916	17,018	20	23,358
Czechoslovakia	0	62	198	276	26	366	2,328	3,516	661	4,107
Canada	101	1,664	2	0	3,195	7,884	187	2,818	10,681	2,822
United States	97	139	31	77	1,279	1,667	802	957	2,008	1,881
Ceylon	—	—	37	29	—	—	443	428	—	642
Java and Madura	—	—	—	—	—	—	5,844	5,767	—	8,514
Japan	—	—	11	13	—	—	112	165	—	231
Algeria	2	2	68	362	29	46	2,577	3,117	73	4,389
Egypt	—	—	—	—	351	24	531	1,545	77	2,041
Tunis	0	0	95	60	2	4	628	930	9	930
Totals	82,044	112,342	98,066	94,669	859,287	936,541	919,689	955,641	1,323,550	1,281,239
Cheese. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Denmark	1,876	873	4	46	10,267	6,982	104	456	9,383	604
Finland	1,008	467	2	4	5,609	4,570	13	20	5,776	33
Italy	6,898	9,317	924	1,175	47,351	64,347	6,433	7,954	89,043	10,115
Lithuania	152	282	0	2	1,276	1,854	2	9	2,546	11
Norway	474	410	24	46	2,632	1,896	168	406	2,840	562
Netherlands	17,864	16,619	82	123	129,553	144,478	767	952	190,460	1,345
Poland	77	209	42	71	635	2,116	412	582	2,884	761
Switzerland	4,965	5,730	364	897	32,395	44,322	3,651	5,093	54,307	8,470
Czechoslovakia	351	1,138	331	333	4,608	6,367	2,284	2,961	10,981	3,779
Yugoslavia	348	474	13	22	1,614	2,870	119	183	4,198	243
Canada	13,872	16,689	46	93	55,656	47,929	710	979	84,790	1,446
Australia	679	309	0	0	4,389	4,209	11	20	7,405	24
New Zealand	6,299	5,897	0	0	129,873	131,237	2	4	181,703	4
<i>Importing Countries:</i>										
Germany	353	694	12,970	10,684	2,895	4,930	81,655	90,438	7,372	120,404
Austria	384	719	201	408	2,511	4,722	2,948	4,685	6,232	5,781
Belgium	55	71	5,534	4,969	428	608	35,109	37,472	814	49,600
Spain	15	18	289	520	198	207	1,660	2,787	236	3,867
Irish Free State	0	22	265	278	29	99	1,704	1,903	194	1,903
France	2,231	2,399	4,422	8,514	20,715	23,847	37,421	61,436	33,239	82,810
Gr. Brit. and N. Irel.	608	586	31,416	21,958	5,322	5,393	255,243	234,643	7,346	323,091
Greece	112	56	35	249	220	143	1,283	2,493	190	3,969
Hungary	2	7	0	13	29	88	11	185	110	203
Portugal	—	—	49	57	—	—	353	516	—	842
Sweden	—	—	119	198	—	—	683	1,133	—	1,691
United States	99	121	4,665	5,516	1,151	1,362	37,876	43,561	1,863	61,992
India	0	0	90	62	2	2	639	602	7	886
Java and Madura	—	—	—	—	—	—	1,043	1,032	—	1,658
Syria and Lebanon	24	0	141	73	46	75	703	516	86	708
Algeria	7	11	1,949	520	110	130	8,016	5,761	172	11,182
Egypt	—	—	—	—	148	22	2,987	4,830	73	2,304
Tunis	0	2	179	183	9	22	1,446	1,398	24	7,033
Totals	58,753	63,090	64,156	57,014	459,671	505,045	485,456	515,010	704,274	708,096

1) 2) See notes page 797.

COUNTRIES	SEPTEMBER				TWO MONTHS (August 1-September 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931-32	1931-32

Cotton. — Thousand cents (1 cental = 100 lb.).

<i>Exporting Countries:</i>										
United States	4,004	3,005	35	26	6,475	4,154	71	64	46,787	620
Argentina	93	75	—	—	203	163	—	—	584	—
Brazil	—	—	—	—	2	7	—	—	183	—
India	653	445	55	86	985	1,484	93	165	7,088	2,249
Egypt	—	—	—	—	395	705	0	0	7,500	0
<i>Importing Countries:</i>										
Germany	143	183	467	384	280	337	906	811	1,640	8,327
Austria	0	0	33	37	0	0	57	71	0	551
Belgium	18	35	115	117	40	73	198	240	348	1,349
Denmark	—	—	13	9	—	—	18	13	—	139
Spain	2	2	141	93	4	2	300	148	24	2,337
Estonia	0	0	4	7	0	0	11	11	0	75
Finland	0	0	13	7	0	0	22	29	0	159
France	31	60	522	146	55	110	763	333	494	4,264
Gr. Brit. and N. Irel.	35	31	723	432	77	64	1,680	1,054	485	12,452
Greece	0	0	13	13	0	0	24	31	0	192
Hungary	0	0	18	20	0	0	46	60	0	333
Italy	0	0	260	216	0	0	503	430	0	4,039
Latvia	0	0	4	4	0	0	11	9	0	51
Norway	0	0	4	0	0	0	9	2	0	44
Netherlands	2	2	35	64	2	2	79	139	7	860
Poland	2	2	121	93	4	4	229	190	22	1,074
Portugal	—	—	33	24	—	—	66	53	—	434
Sweden	—	—	44	29	—	—	68	77	—	564
Switzerland	0	4	33	31	0	4	62	60	4	505
Czechoslovakia . . .	15	13	139	141	24	22	262	282	137	2,002
Yugoslavia	0	0	18	18	0	0	42	33	0	201
Canada	—	—	49	51	—	—	110	99	—	974
Japan	0	84	820	1,177	0	84	1,426	1,903	1,041	16,486
Algeria	0	0	0	0	0	0	0	0	4	7
Totals	4,998	3,941	3,712	3,225	8,546	7,215	7,056	6,307	66,348	60,288

Wool. — (Thousand lb.).

<i>Exporting Countries:</i>					TWELVE MONTHS (September 1-August 31)				TWELVE MONTHS (Sept. 1-August 31)	
	1932	1931	1932	1931	1932	1931	1932	1931	1932	1931

Irish Free State . . .	1,186	1,138	148	77	9,949	7,965	948	752	—	—
Hungary	353	428	35	66	2,344	6,931	1,270	1,612	—	—
Argentina (a)	14,249	5,525	—	—	244,579	299,237	—	—	—	—
Chile (b)	1,270	615	—	—	8,098	4,266	—	—	—	—
India	3,025	2,681	536	373	24,441	28,455	—	—	—	—
Syria and Lebanon . .	571	384	355	154	35,402	41,806	5,020	4,857	—	—
Algeria	551	622	229	93	3,935	9,315	985	3,944	—	—
Egypt	—	—	—	—	6,856	16,835	1,252	1,371	—	—
Un. of S. Africa . . . (a)	12,663	1,131	0	0	1,413	3,752	4	11	—	—
Australia (b)	527	121	0	0	298,044	269,750	0	33	—	—
Gr. Brit. and N. Irel. (a)	66,478	44,276	13	9	5,296	4,830	1,239	500	—	—
New Zealand (b)	7,516	3,924	0	0	762,756	749,740	2,008	2,337	—	—
Japan	1,788	772	0	0	58,535	43,923	15	53	—	—
Tunis	4,257	4,211	9	0	177,836	172,382	2	0	—	—
Totals	137,555	83,950	92,750	84,240	43,314	44,675	13	0	—	—

<i>Importing Countries:</i>										
Germany (a)	514	1,237	10,179	6,612	9,780	11,305	241,740	329,621	—	—
Austria (b)	602	1,153	2,401	1,698	9,681	13,153	31,656	30,552	—	—
Belgium (a)	9	20	633	395	82	254	11,532	14,251	—	—
Denmark (b)	3,549	1,250	4,868	4,411	18,715	10,311	116,938	138,435	—	—
Spain	1,967	1,759	373	170	22,465	21,638	3,036	3,918	—	—
Finland	7	4	617	227	157	93	4,409	3,591	—	—
France	172	128	1,517	243	2,566	3,946	10,483	10,481	—	—
Gr. Brit. and N. Irel.	15	2	399	168	86	64	2,762	2,328	—	—
Greece	2,696	4,742	14,551	10,384	45,631	51,522	399,099	482,693	—	—
Italy (a)	11,784	6,341	33,748	29,103	315,628	309,823	888,010	821,498	—	—
Norway (b)	0	119	225	300	395	2,094	3,025	3,025	—	—
Netherlands (a)	40	130	8,801	4,628	1,232	2,161	145,076	96,622	—	—
Poland (b)	463	236	1,373	1,206	1,620	5,051	14,290	9,599	—	—
Sweden	18	62	194	152	756	725	2,355	1,607	—	—
Switzerland	262	157	311	538	1,933	2,394	7,229	8,770	—	—
Czechoslovakia . . .	97	20	915	483	739	388	8,148	7,134	—	—
Yugoslavia	106	379	1,709	853	1,687	2,610	27,084	38,253	—	—
Canada	—	—	1,063	977	—	—	17,745	15,461	—	—
United States	31	62	1,168	542	397	366	20,150	18,922	—	—
Japan	49	176	3,552	1,786	1,892	1,590	32,038	36,952	—	—
Tunis	22	0	302	225	152	24	2,937	7,963	—	—
Totals	137,555	83,950	92,750	84,240	2,127,598	2,146,649	2,277,987	2,405,435	—	—

a) = Wool, greasy; b) = Wool, scoured. — 2) See notes page 797.

COUNTRIES	SEPTEMBER		THREE MONTHS (July 1-Sept. 30)		TWELVE MONTHS (July 1- June 30)	COUNTRIES	SEPTEMBER		THREE MONTHS (July 1-Sept. 30)		TWELVE MONTHS (July 1- June 30)
	1932	1931	1932	1931	1931-32		1932	1931	1932	1931	1931-32
Coffee. — (Thousand lb.).						Tea. — (Thousand lb.).					
EXPORTS.						EXPORTS.					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Brazil	509	150	a) 135,188	a) 321,170	2,022,263	Ceylon	17,522	15,111	57,706	52,250	245,982
India . . . . .	...	...	558	273	17,926	India	58,945	54,551	136,427	123,477	342,946
Java and Madura .	...	...	a) 26,381	a) 10,723	51,725	Java and Madura .	...	...	a) 25,067	a) 25,289	163,312
						Japan	4,537	3,336	11,707	9,387	24,590
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	79	196	474	692	1,649	Belgium	0	2	4	9	22
Belgium	44	1,012	181	2,172	9,643	Irish Free State .	0	35	7	64	258
France	2	0	2	4	15	France	2	0	4	7	57
Netherlands	1,788	1,127	4,072	3,018	15,265	Gr. Brit. and N. Irel.	6,199	7,015	23,063	20,845	77,887
Portugal	108	79	335	192	1,270	Netherlands	9	11	26	40	139
Switzerland	35	26	84	126	613	United States . . .	31	40	73	84	474
Canada	2	2	9	11	42	Syria and Lebanon	0	0	0	2	20
United States	600	1,041	3,294	4,517	22,595	Algeria	2	0	7	4	49
Ceylon	0	0	0	2	11	Union of S. Africa.	...	...	3) 2	3) 7	121
Syria and Lebanon .	0	0	7	2	46	Australia	60	64	159	194	549
Australia	4	9	7	18	55	New Zealand . . . .	...	...	a) 15	a) 4	148
Totals	—	—	—	—	2,143,116	Totals	87,307	80,165	254,267	231,663	856,554
IMPORTS.						IMPORTS.					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	18,377	24,269	62,457	73,260	307,608	Germany	820	836	2,238	2,363	10,494
Austria	1,182	1,314	5,364	3,576	16,998	Austria	66	77	322	289	1,131
Belgium	12,178	10,289	28,335	34,939	114,674	Belgium	46	42	123	150	661
Bulgaria	11	62	77	273	1,658	Denmark	106	101	245	289	1,380
Denmark	3,287	4,956	7,269	15,518	66,439	Spain	24	9	68	73	322
Spain	2,983	2,965	9,894	10,243	53,912	Estonia	7	15	11	31	172
Estonia	20	22	22	53	298	Irish Free State .	1,682	2,407	4,998	5,176	25,122
Irish Free State . .	26	22	68	88	522	Finland	15	20	44	55	249
Finland	2,837	3,128	8,239	8,911	32,481	France	238	236	670	703	3,419
France	32,518	42,940	94,691	120,626	426,660	Gr. Britain and N.					
Gr. Britain and N.						Ireland	59,853	47,355	149,364	140,600	550,364
Ireland	2,549	2,987	9,837	9,403	37,516	Greece	44	84	119	154	699
Greece	736	1,049	2,299	3,245	13,010	Hungary	66	64	143	161	562
Hungary	498	423	1,574	1,770	6,041	Italy	15	20	35	46	333
Italy	7,341	7,663	20,964	22,035	93,393	Latvia	7	15	26	35	128
Latvia	18	37	49	95	375	Lithuania	4	15	24	35	119
Lithuania	24	42	86	99	445	Norway	33	26	97	49	386
Norway	3,113	3,120	8,688	10,174	38,189	Netherlands	2,685	2,379	7,313	7,551	30,836
Netherlands	10,970	9,707	24,141	27,318	103,379	Poland	284	397	802	1,025	4,317
Poland	1,032	1,389	3,428	4,222	17,185	Portugal	0	62	68	176	648
Portugal	417	730	1,942	2,456	10,657	Sweden	79	60	179	112	858
Sweden	8,949	8,386	23,056	17,549	107,586	Switzerland	152	179	403	434	1,792
Switzerland	2,264	1,843	7,432	7,079	34,286	Czechoslovakia . .	117	273	256	494	1,737
Czechoslovakia . .	1,995	3,084	6,089	7,968	32,386	Yugoslavia	77	86	117	183	622
Yugoslavia	1,620	1,684	3,726	4,921	17,434	Canada	2,057	2,035	5,386	4,890	39,031
Canada	1,523	1,949	5,326	6,457	31,963	United States . . .	9,405	8,567	23,689	23,122	90,460
United States	105,510	104,768	271,337	366,771	1,628,986	Chile . . . . .	...	...	a) 569	a) 1,493	5,172
Chile . . . . .	...	...	a) 675	a) 2,004	9,308	Syria and Lebanon	9	44	20	93	586
Ceylon	187	514	578	1,801	3,572	Turkey	154	168	915	470	1,504
Japan	456	417	736	1,276	6,724	Algeria	443	331	999	531	10,421
Syria and Lebanon .	196	243	428	547	2,324	Egypt . . . . .	...	...	a) 3,481	a) 3,457	13,999
Turkey	553	1,001	4,486	2,610	8,841	Tunis	214	247	734	4,482	6,669
Algeria	2,141	2,952	7,443	7,483	30,532	Union of S. Africa.	...	...	3) 1,005	3) 1,199	12,683
Egypt . . . . .	...	...	a) 3,040	a) 2,443	15,862	Australia	4,026	3,446	13,193	10,964	44,899
Tunis	183	410	769	811	3,190	New Zealand . . . .	...	...	a) 1,823	a) 2,169	2,522
Un. of S. Africa .	...	...	3) 2,233	3) 4,824	26,026						
Australia	245	337	611	858	3,510						
New Zealand . . . .	...	...	a) 71	a) 97	452						
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
India	66	26	110	51	106	India	721	992	1,896	2,370	6,486
Java and Madura .	...	...	...	...	...	Java and Madura .	...	...	a) 1,230	a) 2,048	9,771
Totals	223,975	244,728	627,770	783,854	3,204,528	Totals	83,449	70,588	222,605	217,472	880,554

2) 3) See notes page 797.

COUNTRIES	SEPTEMBER		TWELVE MONTHS (Oct. 1-Sept. 30)		COUNTRIES	SEPTEMBER		TWO MONTHS (August 1-Sept. 30)		TWELE MONTHS (August 1-July 31)		
	1932	1931	1931-32	1930-31		1932	1931	1932	1931		1931-32	
Cacao. — (Thousand lb.).						Total Wheat and Flour *) (Thousand centals).						
EXPORTS.						a) NET EXPORTS.						
Exporting Countries:						Exporting Countries:						
Grenada	220	218	9,376	9,905	—	Germany	1,437	337	146	4)	4)	
Dominican Republ.	1,102	5,573	35,935	61,395	—	Bulgaria	99	860	284	1,257	6,691	
Brazil . . . . .	...	...	160,027 a)	133,836	—	Spain	4)	2	4)	2	4)
Ecuador	1,102	509	35,704	33,076	—	Hungary	800	1,235	1,276	2,017	10,752	
Trinidad	1,543	1,713	38,442	61,569	—	Italy	51	4)	4)	4)	4)	
Venezuela . . . . .	...	...	31,204 a)	42,752	—	Lithuania	2	0	7	7	55
Ceylon	185	317	9,266	8,360	—	Poland	4)	119	4	201	1,929	
Java and Madura . . . . .	...	...	2,877 a)	2,754	—	Rumania	18	7,665	40	11,768	22,335
Cameroon . . . . .	...	...	29,778 a)	27,196	—	U. S. S. R. . . . .	...	...	...	...	1) 39,423
Ivory Coast . . . . .	...	...	52,616 a)	42,975	—	Yugoslavia	82	1,032	212	3,642	8,935
Gold Coast	18,197	12,542	462,878	486,374	—	Canada	17,126	10,042	28,958	18,539	123,625	
Nigeria	4,409	2,388	132,148	115,545	—	United States	2,105	6,232	5,234	12,443	65,566	
St. Thomas and Prince Is.	728	2,039	26,654	24,879	—	Argentina	2,041	3,292	4,365	7,300	83,496	
Togoland . . . . .	...	...	14,991 a)	16,400	—	Chile . . . . .	...	...	132 a)	37	46
						India	75	93	132	95	1,118	
						Syria and Lebanon	37	152	31	152	4)	
						Turkey	7	22	9	29	922	
						Algeria	690	238	2,044	474	3,508	
						Tunis	472	313	2,518	82	5,104	
						Australia	4,253	6,294	6,503	11,034	92,453	
						Totals	29,295	37,928	51,895	69,079	465,958	
IMPORTS.						b) NET IMPORTS.						
Importing Countries:						Importing Countries:						
Germany	10,946	10,838	175,744	180,001	—	Germany	5)	5)	5)	710	13,913	
Austria	906	617	13,561	10,684	—	Austria	454	494	862	888	8,113	
Belgium	633	741	21,588	25,532	—	Belgium	1,563	2,385	3,325	4,665	27,862	
Bulgaria	73	13	1,323	774	—	Denmark	758	1,270	1,722	1,803	10,412	
Denmark	159	152	7,756	7,685	—	Spain	2,628	5)	3,128	5)	3,025	
Spain	763	425	21,892	22,472	—	Estonia	0	26	0	71	262	
Estonia	4	40	452	478	—	Irish Free State	999	1,135	2,006	2,227	11,715	
Irish Free State	86	77	1,149	1,786	—	Finland	238	251	470	489	2,555	
Finland	26	15	181	220	—	France	2,198	3,098	7,798	7,712	47,419	
France	6,358	7,575	91,263	90,116	—	Gr. Brit. and N. Irel.	9,584	19,068	20,214	32,862	143,918	
Gr. Brit. and N. Irel.	10,450	20,254	138,407	141,747	—	Greece	926	1,347	1,951	2,418	14,204	
Greece	183	240	2,844	2,480	—	Italy	5)	333	7	783	19,974	
Hungary	370	481	5,573	5,432	—	Latvia	2	57	13	101	575	
Italy	1,444	1,329	15,053	16,619	—	Norway	417	254	653	597	5,090	
Latvia	75	128	1,607	1,724	—	Netherlands	1,089	1,892	2,430	2,954	17,578	
Lithuania	49	15	615	708	—	Portugal	86	128	227	434	1,660	
Norway	134	578	5,033	4,815	—	Sweden	258	192	774	395	4,096	
Netherlands	6,654	7,112	92,202	147,201	—	Switzerland	6)	983	6)	2,072	6)	12,666
Poland	853	858	11,444	12,313	—	Czechoslovakia	170	1,484	463	2,482	14,758	
Sweden	434	606	10,481	9,092	—	Ceylon	35	26	77	82	542	
Switzerland	309	384	11,197	23,803	—	Indo-China . . . . .	...	...	42 a)	35	518
Czechoslovakia	1,958	1,069	21,526	18,237	—	Japan	112	355	90	772	12,584	
Yugoslavia	172	40	1,501	1,473	—	Java and Madura . . . . .	...	...	2)	106 a)	123
Canada	1,144	293	16,444	15,371	—	Syria and Lebanon	5)	5)	5)	5)	223	
United States	45,276	31,595	420,143	406,214	—	Egypt . . . . .	...	...	24 a)	227	4,231
Australia	1,243	712	11,252	7,308	—	Union of S. Africa . . . . .	...	...	...	...	1,049
New Zealand . . . . .	...	...	1,444 a)	1,459	—	New Zealand . . . . .	...	...	262 a)	51	569
Totals	90,702	86,187	1,101,675	1,155,744	—	Totals	22,500	35,043	48,716	65,163	381,028	

*) Flour reduced to grain on the basis of the coefficient: 1,000 centals of flour = 1,333.33 centals of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 30 June. — 2) Data up to 31 August. — 3) Data up to 31 July. — 4) See Net Imports. — 5) See Net Exports. — 6) Wheat only.

STOCKS

STOCKS (TOTAL AND QUANTITIES FOR SALE) IN FARMERS' HANDS IN GERMANY.

PRODUCTS	% Total stocks: total production				% Quantities intended for sale: total production				% Stocks in elevators: total production 1)	
	15 Oct. 1932 2)	15 Sept. 1932	15 Oct. 1931	15 Oct. 1930	15 Oct. 1932 2)	15 Sept. 1932	15 Oct. 1931	15 Oct. 1930	15 Oct. 1932 2)	15 Sept. 1932
Winter wheat . . .	67.2	81.8	60.2	62.1	57.1	67.5	47.8	50.4	6.5	6.2
Spring wheat . . .	82.4	90.7	80.9	81.0	70.2	79.4	68.3	66.8	6.7	4.5
Winter rye . . .	68.3	82.2	60.7	71.4	39.4	47.8	27.4	40.1	3.8	3.9
Winter barley . . .	41.3	54.9	41.5	40.4	7.5	13.7	7.0	7.2	0.7	0.5
Spring barley . . .	73.2	87.8	79.6	67.7	45.7	55.2	53.0	42.6	0.5	0.6
Oats . . .	86.7	95.5	86.6	89.1	21.1	24.7	20.1	24.6	0.3	0.4
Potatoes . . .	80.6	93.5	80.0	81.7	30.1	41.8	28.3	32.2	0.1	0.1

1) These stocks are the property of farmers but are not on the farms; as they are partly in commercial elevators certain quantities are reckoned twice, the report on stocks in elevators not making any distinction of ownership. — 2) These percentages are calculated on the basis of final crop data, those of 15 September on the estimate of 15 August.

Authority: *Preisberichtsstelle beim Deutschen Landwirtschaftsrat.*

STOCKS OF CEREALS IN COMMERCIAL ELEVATORS AND MILLS IN GERMANY 1).

PRODUCTS	Last day of month			Last day of month		
	October 1932	September 1932	August 1932	October 1932	September 1932	August 1932
	1,000 centals			1,000 bushels or barrels		
WHEAT:						
Grain	14,903	15,214	8,589	24,838	25,356	14,315
Flour for bread	2,802	2,396	1,795	1,430	1,223	916
TOTAL 2)	18,640	18,409	10,381	31,066	30,683	18,305
RYE:						
Grain	11,931	13,307	9,872	21,306	23,763	17,629
Flour for bread	1,651	1,495	926	842	763	472
TOTAL 2)	14,133	15,300	11,107	25,235	27,324	19,832
BARLEY	3,565	2,994	2,432	7,427	6,237	5,066
OATS	1,603	1,310	849	5,009	4,092	2,652

1) See note under the corresponding table in the Bulletin for March, on page 218. — 2) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of flour = 1,333.33 centals of grain (1,000 barrels of flour = 4,355.55 bushels of wheat or 4,584.80 bushels of rye).

MAIZE STOCKS REMAINING OF FARMS IN THE UNITED STATES.

YEAR	Production in the year preceding that mentioned		Quantities on farms					
	1,000 centals	1,000 bushels	November 1st			March 1st		
			1,000 centals	1,000 bushels	%	1,000 centals	1,000 bushels	%
1932	1,435,432	2,563,271	86,785	154,974	6.0	618,067	1,103,691	43.2
1931 1)	1,153,704	2,060,185	44,213	78,951	3.9	393,976	703,529	34.1
1930 1)	1,419,816	2,535,386	34,195	61,063	2.4	536,524	958,111	37.8
1929	1,578,585	2,818,901	42,761	76,359	2.7	572,249	1,021,873	36.3
1928	1,547,332	2,763,093	30,102	53,753	2.0	566,668	1,011,908	36.6

1) The estimates for November 1st are revised.

WHEAT AND WHEAT-FLOUR STOCKS HELD BY COMMERCIAL MILLS IN THE UNITED STATES (1).

Specification and situation	Last day of month					Last day of month				
	Sept. 1932	June 1932	March 1932	Sept. 1931	Sept. 1930	Sept. 1932	June 1932	March 1932	Sept. 1931	Sept. 1930
	1,000 centals					1,000 bushels or barrels				
Wheat held by mills and mill elevators attached to mills	65,613	36,196	44,122	57,952	61,178	109,355	60,326	73,537	96,586	101,964
Wheat in transit to merchant mills and bought to arrive	8,879	5,659	5,173	8,995	9,804	14,798	9,432	8,621	14,991	16,340
Wheat flour in mills and warehouses, and in transit, sold and unsold	8,320	6,254	7,679	6,923	7,722	4,245	3,191	3,918	3,532	3,940
TOTAL (2)	85,585	50,734	60,344	76,907	82,093	142,642	84,556	100,753	128,177	136,822

(1) Partial census, including mills accounting for over 90 % of the total capacity of all commercial mills; see article about cereal stocks on page 502 of Crop Report for August 1931. — (2) Including flour in terms of wheat.

COMMERCIAL CEREALS IN STORE IN CANADA AND THE UNITED STATES.

SPECIFICATION	Friday or Saturday nearest to 1st of month					Friday or Saturday nearest to 1st of month				
	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Canadian in Canada	143,661	112,351	69,450	91,718	100,372	239,435	187,252	115,750	152,863	167,287
U. S. in Canada	4,574	5,102	7,288	18,976	2,854	7,623	8,503	12,147	31,627	4,756
U. S. in the United States	115,128	116,977	113,014	146,432	126,829	191,880	194,961	188,357	244,054	211,381
Canad. in the United States	8,350	6,592	3,347	7,558	13,267	13,916	10,987	5,579	12,596	22,112
Total	271,713	241,022	193,099	264,684	243,322	452,854	401,703	321,833	441,140	405,436
RYE:										
Canadian in Canada	2,943	2,771	2,685	7,292	7,025	5,256	4,948	5,116	13,021	12,546
U. S. in Canada	55	55	68	460	1,564	99	99	121	821	2,792
U. S. in the United States	4,752	4,872	5,070	5,811	9,683	8,485	8,700	9,053	10,377	17,291
Canad. in the United States	281	231	231	217	241	502	412	412	388	430
Total	8,031	7,929	8,234	13,780	18,513	14,342	14,159	14,702	24,607	33,059
BARLEY:										
Canadian in Canada	2,820	2,777	1,395	5,410	14,903	5,874	5,786	2,907	11,270	31,047
U. S. in Canada	55	55	10	12	213	114	114	20	24	444
U. S. in the United States	4,503	4,307	3,195	3,539	7,209	8,381	8,973	6,657	7,373	15,018
Canad. in the United States	22	13	1	2	399	46	27	2	4	832
Total	7,400	7,152	4,601	8,963	22,724	15,415	14,900	9,586	18,671	47,341
OATS: (1)										
Canadian in Canada	2,828	2,473	1,952	6,734	3,801	8,836	7,728	6,100	21,044	11,877
U. S. in Canada	478	520	364	78	824	1,495	1,626	1,137	244	2,576
U. S. in the United States	9,307	9,267	8,752	5,820	10,645	29,084	28,960	27,351	18,189	33,265
Canad. in the United States	0	0	0	13	9	0	0	0	41	27
Total	12,613	12,260	11,068	12,645	15,279	39,415	38,314	34,588	39,518	45,745
MAIZE:										
U. S. in Canada	1,962	1,576	273	640	420	3,503	2,815	487	1,143	750
Of other origin in Canada	208	143	321	865	316	371	255	573	1,544	564
U. S. in the United States	15,468	10,354	8,254	4,111	2,548	27,621	18,489	14,740	7,341	4,550
Total	17,638	12,073	8,848	5,616	3,284	31,495	21,559	15,800	10,028	5,864

1) For oats the bushel is of 32 lbs.

QUANTITIES OF CEREALS ON OCEAN PASSAGE WITH FIRST DESTINATION FOR EUROPE.

PRODUCTS	Saturday nearest to 1st of month					Saturday nearest to 1st of month				
	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930
	1,000 centals					1,000 bushels				
Wheat (and flour in terms of wheat) .	19,128	17,794	14,712	23,093	25,339	31,880	29,656	24,520	38,488	42,232
Rye.	326	826	106	922	1,440	583	1,474	189	1,646	2,751
Barley.	2,652	3,384	2,056	4,088	6,412	5,525	7,050	4,283	8,517	13,358
Oats	976	851	851	1,178	1,882	3,050	2,660	2,660	3,680	5,880
Maize	12,547	14,798	14,549	26,515	16,109	22,406	26,426	25,980	47,349	28,766

Authority: *Broomhall's Corn Trade News.*

GRAIN AND FLOUR STOCKS AT THE PORTS OF GREAT BRITAIN AND IRELAND 1).

PRODUCTS	First of the month					First of the month				
	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Grain	4,776	3,792	4,392	16,416	5,064	7,960	6,320	7,320	27,360	8,440
Flour as grain . .	528	768	600	960	912	880	1,280	1,000	1,600	1,520
TOTAL	5,304	4,560	4,992	17,376	5,976	8,840	7,600	8,320	28,960	9,960
Barley.	760	580	300	1,140	1,020	1,583	1,208	625	2,375	2,125
Oats	368	400	336	672	1,056	1,150	1,250	1,050	2,100	3,300
Maize	3,936	3,624	2,976	2,784	2,304	7,029	6,471	5,314	4,971	4,114

1) Imported cereals.

Authority: *Broomhall's Corn Trade News.*

STOCKS OF COTTON ON HAND IN THE UNITED-STATES.

LOCATION	Last day of the month					Last day of the month				
	October 1932	Sept. 1932	August 1932	October 1931	October 1930	October 1932	Sept. 1932	August 1932	October 1931	October 1930
	1,000 centals					1,000 bales (counting round as half bales)				
In consuming establishments	6,227	5,341	5,355	5,481	6,555	1,267	1,087	1,090	1,116	1,355
In public storage and at compresses	48,344	39,202	32,211	46,490	36,201	9,827	7,969	6,548	9,450	7,474
TOTAL	54,571	44,543	37,566	51,971	42,756	11,094	9,056	7,638	10,566	8,829

STOCKS OF COTTON AT BOMBAY AND AT ALEXANDRIA.

PORTS	Thursday nearest to 1st of month					Thursday nearest to 1st of month				
	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930
	1000 centals					1000 bales (1 bale = 478 lbs.)				
Bombay 1)	2,200	2,684	2,995	1,772	1,666	460	562	627	371	348
Alexandria	3,861	3,257	3,326	4,807	4,286	808	681	696	1,006	897

1) Stocks held by exporters, dealers and mills.

Authorities: *East Indian Cotton Ass. and Commission de la Bourse de Minet-el-Bassal.*

STOCKS OF COTTON IN EUROPE.

COUNTRIES, PORTS, DESCRIPTIONS	Thursday or Friday nearest to 1st of month					Thursday or Friday nearest to 1st of month				
	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930
	1,000 centals					1,000 bales (1 bale = 478 lbs.)				
<i>Great Britain:</i>										
American	1,686	1,752	1,801	1,159	1,443	353	366	377	243	302
Argentine, Brazilian, etc.	178	171	131	168	254	37	36	27	35	53
Peruvian, etc. . .	330	315	309	278	442	69	66	65	58	92
East Indian, etc.	194	272	293	502	229	40	57	61	105	48
Egyptian, Sudan- ese	1,323	1,483	1,454	1,189	1,229	277	310	304	249	257
Other 1)	87	112	110	191	251	18	24	23	40	53
TOTAL	3,798	4,105	4,098	3,487	3,848	795	859	857	730	805
<i>Bremen:</i>										
American	1,843	1,398	1,322	809	1,865	386	292	277	169	390
Other	58	46	44	50	34	12	10	9	11	7
TOTAL	1,901	1,444	1,366	859	1,899	398	302	286	180	397
<i>Le Havre:</i>										
American	935	624	562	815	883	196	131	118	170	185
Other	47	53	58	124	186	10	11	12	26	39
TOTAL	982	677	620	939	1,069	206	142	130	196	224
<i>Total Continent 2):</i>										
American	3,395	2,500	2,448	1,939	3,074	710	523	512	406	643
Argentine, Brazilian, etc.	50	38	36	81	108	10	8	8	17	23
E. Indian, Australian, etc.	70	64	73	163	222	15	14	15	34	46
Egyptian	120	140	134	116	79	25	29	28	24	17
W. Indian, W. African, R. African, etc. . . .	36	36	36	35	119	8	7	8	7	25
TOTAL	3,671	2,778	2,727	2,334	3,602	768	581	571	488	754

1) Includes: W. Indian, etc., E. African, etc.; W. African, and Australian. — 2) Includes Bremen, Havre, and other Continental ports
 Authority: *Liverpool Cotton Ass.*

IMPORT DUTIES ON CEREALS AND FLOUR

CHANGES TO BE MADE IN THE DUTIES PUBLISHED ON PAGES 160 TO 163 OF THE CROP REPORT FOR FEBRUARY
 (SEE ALSO THE SAME HEADING IN THE PRECEDING CROP REPORTS FOR THIS YEAR).

COUNTRY	PRODUCT	Date when enforced	Original data per metric quintal	Data in Amer. cents per bushel or barrel
Germany.	Barley, after export of a corresponding quantity of certain barley products 1)	26 October	exempt	exempt
"	Oats, after export of a corresponding quantity of certain oat products 1)	"	"	"
Italy	Yellow maize, product of Italian colonies 2) . .	4 July	lire 10.00	13.33
Poland	Maize (including Horsetooth type)	10 October	zl. 17.00	48.42
"	Maize for seed 3)	"	exempt	exempt
"	Wheat flour	"	zl. 40.00	398.64
"	Rye flour	"	zl. 30.00	298.98
Switzerland	Maize (supplementary duty)	18 October	fr. 4.00	19.60

1) On the export of the products indicated an export certificate is delivered, validating the import of whole cereals up to 31 July 1933. —
 2) Reduced duty valid for a quota of 40,000 quintals (157,474 bushels) a year. — 3) Import subject to authorization of the Ministry of Finance.

MONTHLY REVIEW OF PRICES 1)

PRODUCTS, MARKETS AND DESCRIPTION	18	11 ^{a)}	4	28	21	AVERAGE 2)					Commercial Season	
	Nov.	Nov.	Nov.	Oct.	Oct.	Oct.	Nov.	Nov.	Nov.		1931-32	1930-31
	1932	1932	1932	1932	1932	1932	1932	1930				
WHEAT.												
Budapest (a): Tisza region (78-80 kg. p. hl.; pengő p. quintal)	13.08	13.27	13.05	13.65	13.75	13.93	11.83	14.29	12.28	15.34		
Braila: Good quality (lei p. quintal)	630	620	655	640	550	n.540	307	337	305	351		
Winnipeg: No. 1 Manitoba (cents p. 60 lbs)	46 ³ / ₄	46 ⁷ / ₄	45 ³ / ₄	48	49	48 ³ / ₄	66	64 ¹ / ₄	59 ³ / ₄	64 ¹ / ₄		
Chicago: No. 2 Hard Winter (cents p. 60 lbs.)	45 ³ / ₄	n. q.	n. 44 ¹ / ₂	46 ³ / ₄	n. 49 ¹ / ₄	n. 49	61 ³ / ₄	74 ¹ / ₄	54 ³ / ₄	78		
Minneapolis: No. 1 Northern (cents p. 60 lbs.)	46	49 ¹ / ₄	48 ¹ / ₂	50 ³ / ₄	51 ³ / ₄	51 ³ / ₄	75 ³ / ₄	75 ³ / ₄	66 ³ / ₄	77 ³ / ₄		
New-York: No. 2 Hard Winter (cents p. 60 lbs.)	52 ³ / ₄	54 ³ / ₄	53 ³ / ₄	54 ³ / ₄	57 ³ / ₄	56 ¹ / ₂	71 ³ / ₄	87	66 ³ / ₄	91 ¹ / ₄		
Buenos Aires (b); Barletta (80 kg. p. hectol.; pesos paper p. quintal)	6.20	6.20	6.10	6.55	6.75	6.72	7.49	7.02	6.68	6.83		
Karachi: Karachi white, 2 % barley, 1½ % dirt (rupees p. 656 lbs.)	27-15-0	28-6-0	27-7-0	28-8-0	28-12-0	29-0-6	22-8-0	19-14-3	21-15-9	19-15-2		
Berlin: Home grown (Reichsmarks p. quintal)	19.60	20.20	19.70	19.00	19.70	19.72	22.55	24.97	23.63	26.00		
Hamburg, c. i. f. (Reichsmarks p. quintal):												
No. 2 Manitoba	8.21	8.42	8.22	8.65	8.90	8.81	11.43	12.77	10.38	12.65		
No. 2 Hard Winter	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	11.13	n. q.	n. 9.32	n. 13.00		
Barusso (79 kg. p. hl.)	n. 7.70	n. 7.70	n. 7.54	n. 8.13	n. 8.47	n. 8.49	9.67	11.56	8.78	11.10		
Antwerp (Belgian francs p. quintal):												
Home grown	78.00	78.00	79.00	78.00	80.00	80.75	n. q.	82.00	83.10	95.50		
No. 2 Hard Winter, Gulf g)	76.00	75.00	78.00	80.50	79.00	80.60	94.75	106.00	81.75	112.50		
Paris: Home-grown, 75-77 kg. (francs p. quintal)	113.25	110.50	113.75	112.00	115.25	114.70	161.50	164.75	167.10	175.00		
London: Home grown (shillings p. 504 lbs.)	23/6	24/6	24/6	24/9	24/9	24/10	30/3	29/7	26 5	27/1		
London and Liverpool c. i. f., shipping current month (shillings p. 480 lbs.) 10):												
South Russian (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	n. 25/7	27/2	22/11	22/3	23/7		
No. 3 Manitoba	24/10 ¹ / ₄	25/1 ¹ / ₄	25/-	25/6	25/6	25/4	29/1	25/10	25/9	25/4		
No. 2 Hard Winter	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	13/ 27/11	n. q.	25/3	26/4		
White Pacific	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	13/ 34/2	27/5	26/5	26/7		
Rosafé (allot) 14)	n. 24/-	n. 23/9	n. 23/-	n. 26/-	n. 25/9	25/10	26/10	24/4	23/8	23/5		
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	32/-	27/2	n. q.	27/-		
Australian	25/9-	26/-	26/4 ¹ / ₄	27/-	27/-	26/11	29/7	27/8	25/9	25/7		
Milan (a): Home-grown, soft (lire p. quintal)	110.00	110.00	108.00	106.00	105.00	105.00	100.00	109.60	106.20	109.10		
Genoa c. i. f. (shillings p. metric ton): La Plata 16)	n. 1.83 ³ / ₄	n. 1.11	n. q.	n. q.	n. 1.94	n. 1.97	n. q.	n. 1.24/-	n. 2.21	110/-		
RYE.												
Budapest (a): Home-grown (pengő p. quintal)	6.87	6.92	6.70	7.02	7.20	7.28	12.14	8.04	12.24	10.79		
Berlin: Home-grown (Reichsmarks per quintal)	15.50	15.90	15.60	15.30	15.50	15.52	19.77	15.20	19.00	17.18		
Hamburg, c. i. f. (Reichsmarks p. quintal):												
Russian (72-73 kg. p. hl.)	6.34	6.01	6.01	6.19	6.44	6.35	n. q.	n. q.	n. 9.50	n. q.		
La Plata (74-75 kg. p. hl.)	n. 6.47	n. 6.43	n. 6.35	n. q.	n. q.	n. q.	9.32	n. q.	8.36	7.65		
Minneapolis: No. 2 (cents p. 56 lbs.)	32	31 ¹ / ₄	30	30 ¹ / ₄	32	31 ³ / ₄	50 ¹ / ₄	42 ³ / ₄	42 ¹ / ₄	42 ¹ / ₄		
Groningen (c): Home-grown (florins p. quintal)	3.75	3.87	3.90	3.90	3.90	3.90	5.24	4.31	5.13	4.45		
BARLEY.												
Braila: Average quality (lei p. quintal)	205	205	202	210	200	205	287	177	263	232		
Winnipeg: No. 4 Western (cents p. 48 lbs.)	28 ¹ / ₄	28 ³ / ₄	27 ¹ / ₄	26 ³ / ₄	25 ³ / ₄	25	40 ¹ / ₄	22 ¹ / ₄	34 ³ / ₄	26 ¹ / ₄		
Chicago: Feeding (cents p. 48 lbs.)	36	30	24	26	26	26 ³ / ₄	44 ³ / ₄	45 ³ / ₄	43 ³ / ₄	43 ³ / ₄		
Berlin: Home-grown fodder (Reichsmarks per quintal)	16.45	16.55	16.55	16.55	16.85	16.86	16.61	17.55	16.41	19.52		
Antwerp: Danubian (francs p. quintal)	56.00	55.00	55.00	56.00	56.50	57.40	81.50	62.75	77.25	73.25		
London: English malting (shillings p. 448 lbs.)	40/-	40/-	40/-	40/-	40/-	38/1	42/-	39/4	39/4	35/8		
London and Liverpool, c. i. f., parcels (shillings per 400 lbs.):												
Danubian 3 %	18/9	18/3	18/4 ¹ / ₄	n. q.	n. q.	n. q.	23/1	13/6	n. q.	15/2		
Russian (Azoff-Black sea)	n. q.	n. q.	n. q.	n. q.	n. q.	n. 15/9	22/1	n. 12/-	18/11	14/3		
Canadian Western, N. 3	20/-	19/6	19/-	18/9	18/-	17/8	24/-	15/3	20/11	15/11		
Californian malting (shillings p. 448 lbs.)	24/-	21/9	n. q.	21/3	21/3	21/3	39/6	26/1	33/4	27/8		
Groningen (c): Home grown winter (fl. p. quintal)	4.85	4.75	4.90	4.85	4.80	4.89	6.16	4.39	5.87	4.97		

a) Saturday prices. — b) Thursday prices. — c) Prices of preceding Tuesday.

1) All quotations are, unless otherwise stated, for spots. — 2) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 3) For North American markets and for Paris: 10 Nov. — 4) 14 Oct.: 51³/₄. — 5) 14 Oct.: 57³/₄. — 6) 80 kg. p. hl. — 7) Jan.-Feb. shipment. — 8) 78 kg. per hl. — 9) From July 1931: Hard Winter No. 1. — 10) German per sample: 18 Nov.; 24/-; 11 Nov.: 24/-; 4 Nov.: 24/4¹/₄; 28 Oct.: 23/6; 21 Oct.: 23/3; average Oct. 23/8. — 11) Nov. shipment. — 12) Hard Winter on sample. — 13) December shipment. — 14) April-Nov. 1930: 62³/₄ lb. per bushel; Dec. 1930 — Feb. 1931: 63³/₄ lb.; March-Nov. 1931: 63 lb.; Dec. 1931: 63³/₄ lb.; from Jan. 1932: 64 lb. — 15) Dec.-Jan. shipment. — 16) From April 1932: dollars per quintal. — 17) 71-72 kg. per hl.

PRODUCTS, MARKETS AND DESCRIPTION	18	11	4	28	31	AVERAGE 1)					Commercial Season	
	Nov.	Nov.	Nov.	Oct.	Oct.	Oct.	Nov.	Nov.	Nov.			
	1932	1932	1932	1932	1932	1932	1931	1930		1931-32	1930-31	
OATS.												
Braila: Good quality (lei p. quintal)	200	200	200	202	202	n. 202	322	167	285	247		
Winnipeg: No. 2 White (cents per 34 lbs.)	24 ³ / ₈	24 ³ / ₈	23 ³ / ₈	25	24 ³ / ₈	23 ³ / ₈	32 ⁷ / ₈	27 ⁵ / ₈	31 ³ / ₈	30		
Chicago: No. 2 White (cents per 32 lbs.)	17 ¹ / ₂	17 ¹ / ₂	16 ¹ / ₂	15 ¹ / ₂	15 ¹ / ₂	15 ¹ / ₂	27 ¹ / ₈	33 ³ / ₈	24 ³ / ₈	32 ⁷ / ₈		
Buenos Aires (a): Current quality (pesos paper p. quintal)	4.40	4.50	4.55	4.80	4.90	5.11	6.37	3.22	5.33	3.58		
Berlin: Home grown (Reichsmarks p. quintal)	12.95	13.55	13.55	13.25	13.60	13.56	14.92	14.40	15.10	16.17		
Paris: Home grown, black and other (francs p. quintal)	87.50	85.75	88.00	87.25	86.50	86.85	92.35	70.20	101.75	81.00		
London: Home grown white (shillings p. 336 lbs.)	18/9	18/9	18/9	18/9	18/9	18/9	21/3	18/-	21/3	18/4		
London and Liverpool c. i. f., parcels (shillings p. 320 lbs.):												
Danubian (39-40 lbs.)	13/9	13/10 ¹ / ₂	14/3	14/3	14/3	14/5	n. q.	n. 11/1	n. q.	n. 12/1		
Plate (f. a. q.)	13/9	13/9	13/9	14/-	14/-	14/5	17/5	10/4	14/5	10/9		
Chilian Tawny	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	19/6	11/5	n. 16/-	12/-		
Milan (b): spot (lire p. quintal):												
Home grown	67.50	67.50	67.50	67.50	67.50	67.50	73.50	76.35	73.60	73.95		
Foreign imported	62.50	62.50	63.00	61.00	62.00	63.00	69.00	55.75	65.20	60.40		
MAIZE.												
Braila: Danubian (lei p. quintal)	163	165	164	163	173	170	163	192	187	210		
Chicago: No. 2 Mixed American (cents p. 56 lbs.)	26 ⁷ / ₈	28 ¹ / ₂	25 ³ / ₈	25 ¹ / ₂	25 ¹ / ₂	25 ³ / ₈	43 ¹ / ₈	74 ¹ / ₄	34	58 ¹ / ₄		
Buenos Aires (a): Yellow Plate (pesos paper p. quintal)	4.32	4.40	4.35	4.45	4.55	4.52	4.82	3.89	4.63	3.82		
Antwerp, spot (Belgian francs p. quintal):												
Bessarabian	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	68.25	n. q.	71.25		
Argentine Cincuantino	62.00	61.00	61.50	61.00	60.00	61.00	67.00	90.75	63.30	81.00		
Yellow Plate	52.50	51.50	53.00	54.00	54.50	55.10	61.75	68.00	57.20	65.00		
London and Liverpool, parcels, c. i. f. (shillings p. 480 lbs.) 4):												
Danubian	18/6	18/9	18/4 ¹ / ₂	n. q.	18/7 ¹ / ₂	18/7 ¹ / ₂	19/9	16/10	n. 19/3	n. 17/4		
Yellow Plate	18/1 ¹ / ₂	18/-	17/9	18/3	17/7 ¹ / ₂	17/11	17/4	16/7	18/2	15/6		
No. 2 White African	18/6	18/9	n. q.	19/3	19/3	19/6	21/8	n. q.	n. 20/11	18/1		
Milan (b): Home grown (lire p. quintal)	57.00	57.00	57.00	57.00	57.00	57.00	61.25	52.10	68.70	51.90		
RICE (CLEANED).												
Milan (b): Maratelli (lire p. quintal)	143.50	143.50	143.50	143.50	140.50	140.35	140.10	122.25	117.35	152.15		
Rangoon: No. 2 Burma (rupees p. 7500 lbs.)	230	225	235	240	240	240	266	317 ¹ / ₂	249 ³ / ₄	393 ³ / ₄		
Saigon (Indo-chinese piastres p. quintal):												
No. 1 Round white (25 % broken) . . . . .	...	...	...	...	...	...	6.60	8.73	6.73	11.36		
No. 2 Japan (40 % broken) . . . . .	...	...	...	...	...	...	6.14	8.12	6.20	10.89		
London (a): c. i. f. (shillings p. 112 lbs):												
Spanish Belloch, No. 3 oiled	14/-	14/-	14/-	14/-	13/6	13/6	12/9	12/11	11/11	14/1		
Italian good, No. 6 oiled	n. q.	n. q.	12/9	12/9	12/3	12/8	n. q.	12/7	13/7	14/11		
American Blue Rose	15/9	16/6	17/-	17/-	16/6	17/-	20/4	18/7	18/7	21/9		
Burma, No. 2	7/3	7/3	7/5	7/9	7/9	7/9	8/8	9/-	7/11	10/11		
Saigon, No. 1	7/4 ¹ / ₂	7/4 ¹ / ₂	7/6	7/7 ¹ / ₂	7/10 ¹ / ₂	7/9	9/5	n. q.	8/1	11/6		
Siam, Garden, No. 1 g)	8/3	8/7 ¹ / ₂	8/7 ¹ / ₂	8/7 ¹ / ₂	8/4 ¹ / ₂	8/7 ¹ / ₂	11/3	10/10	9/5	14/-		
Tokio: Various qualities (yens p. koku)	20.10	18.90	18.50	18.90	18.30	18.32	17.55	18.07	18.46	25.57		
LINSEED.												
Buenos Aires (a): Current quality (pesos paper p. quintal)	9.07	9.00	9.00	9.30	9.50	9.45	11.00	14.42	10.82	17.19		
Antwerp: Plate (Belgian francs p. quintal)	101.50	99.50	100.00	104.00	105.50	104.35	129.75	205.50	146.00	284.25		
London, c. i. f. (£ p. long ton):												
La Plata (delivery Hull) 10)	8-16-3	8-15-0	8-12-6	8-17-6	8-15-0	8-15-7	9-10-0	10-6-10	8-14-1	15-0-5		
Bombay hold	11-12-6	11-12-6	11-12-6	11-16-3	11-16-3	11-16-3	11-16-10	13-13-9	11-9-6	17-14-4		
Duluth: No. 1 Northern (cents p. 56 lbs.)	107 ¹ / ₄	105 ³ / ₄	104 ⁷ / ₈	108 ¹ / ₂	109 ³ / ₄	108 ¹ / ₂	141 ⁷ / ₈	164	148	236		

a) Thursday prices. — b) Saturday prices.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) New crop. — 3) Old crop maize: 28 Oct.: n. 170; 21 Oct.: 180; 14 Oct.: 175; 7 Oct.: 190; average Oct.: 179; this average has been adopted in calculating the average for the commercial year. — 4) Nov.-Dec. shipment: Novorossiisk and other southern ports of the U. S. S. R.: yellow: 18 Nov.: 18/-; 11 Nov.: 18/-; 4 Nov.: 18 1/2; 28 Oct.: 18 3/4; 21 Oct.: 18 1/2; average October: 18/4; white: 18 Nov.: 18/3; 11 Nov.: 18/3; 4 Nov.: 18 1/2; 28 Oct.: n. q.; 21 Oct.: 18/9; average October: n. 18/11. — 5) 14 Oct.: 4.73; 7 Oct.: 4.81; 30 Sept.: 5.03; 23 Sept.: 5.22; average Sept.: 5.06. — 6) 14 Oct.: 4.45; 7 Oct.: 4.48; 30 Sept.: 4.65; 23 Sept.: 4.89; average Sept.: 4.72 — 7) January-February shipment. — 8) February-March shipment. — 9) From January 1932 quotations refer to "Siam Special". — 10) In place of "Hull: La Plata".

PRODUCTS, MARKETS AND DESCRIPTION	18	11	4	28	21	AVERAGE 1)				
	Nov.	Nov.	Nov.	Oct.	Oct.	Oct.	Nov.	Nov.	Commercial	
	1932	1932	1932	1932	1932	1932	1931	1930	Season	
									1931-32	1930-31
COTTONSEED.										
Alexandria: Sakellaridis (piastres per ardeb) . . .	64.9	64.0	61.2	62.4	63.9	65.2	62.8	54.3	60.0	52.2
London: Sakellaridis (delivery Hull: 1 p. 1. ton) 2) .	n.6-16-3	6-11-3	6-6-3	6-7-6	6-7-6	6-10-11	6-10-7	5-16-7	6-3-7	5-12-6
COTTON.										
New Orleans: Middling (cents per lbs.)	6.25	6.40	6.20	6.32	6.25	6.50	6.28	10.55	6.20	10.07
New York: Middling (cents per lbs.)	6.35	6.70	6.20	6.35	6.30	6.56	6.41	10.87	6.35	10.38
Bombay: M. g. Broach f. g. (rupees per 784 lbs.) .	215	212	208	213	206	208 1/2	186	199 1/2	181 3/4	191 1/4
Alexandria (talaris per kantar):										
Sakellaridis f. g. f.	13.80	14.40	13.90	14.00	14.20	14.47	13.17	17 1/2	12.17	17.12
Ashmuni (Upper Egypt) f. g. f.	12.85	13.15	12.50	12.75	12.50	12.73	9.59	11 7/8	9.73	12.00
Bremen: Middling (U. S. cents per lbs.)	7.53	7.61	7.25	7.62	7.50	7.75	7.55	12.00	7.44	11.59
M. g. Broach fully good (pence per lbs.)	n. 4.95	n. 5.25	n. 5.05	n. 5.15	n. 4.90	n. 5.04	n. 4.50	n. 4.66	n. 4.48	n. 4.63
Le Havre: Middling, Gulf (francs per 50 kg.) . . .	229.00	224.00	222.00	227.00	227.00	234.00	212.00	360.00	216.00	348.00
Liverpool (pence per lbs.):										
Middling fair	n. 6.76	n. 6.75	n. 6.54	n. 6.77	n. 6.61	n. 6.74	n. 6.13	n. 7.12	n. 5.85	n. 6.93
Middling	5.61	5.60	5.39	5.62	5.46	5.59	4.97	5.97	4.79	5.72
São Paulo, good fair	n. 5.86	n. 5.85	n. 5.64	n. 5.87	n. 5.71	n. 5.84	5.13	6.20	n. 4.98	5.91
M. g. Broach, fully good	n. 5.19	n. 5.18	n. 4.96	n. 5.15	n. 4.95	n. 5.10	n. 4.54	n. 4.41	n. 4.34	n. 4.25
Sakellaridis, fully good fair	7.70	7.99	7.76	7.80	7.88	7.99	7.42	9.62	6.76	9.08
BUTTER.										
									1931	1930
Copenhagen (a) Danish (Crs. p. quintal)	188.00	188.00	194.00	186.00	180.00	183.50	209.00	224.00	209.00	245.00
Leeuwarden, Commission for the Dutch butter										
quotations: (florins per kg.)	0.82	0.82	0.82	0.80	0.80	0.82	1.17	1.57	1.34	1.66
Maastricht, auction (b): Dutch (florins p. kg.) 3) .	1.57	1.57	1.55	1.55	1.55	1.52	1.18	1.63	1.38	1.70
Hamburg, auction (c): Schleswig-Holstein butter,										
with quality mark (R. M. per 50 kg.)	123.02	123.32	121.11	120.07	119.93	119.87	120.45	142.83	131.22	146.67
Kempten (d): Allgäu butter (Pfennige p. half kg.) 3) .	110	107	100	100	103	101 1/2	101	120	110	128
London (d) (shillings p. cwt.):										
British blended	121/4	130/8	130/8	130/8	130/8	133 -	140/-	147/4	140/4	158/8
Danish	126/-	126/-	124/-	121/-	122/-	123/9	135/6	147/6	133/4	153/6
Irish creamery, salted	106/-	108/-	110/-	111/-	113/-	113/6	121/9	124/4	119/3	134/10
Dutch	120/-	120/-	118/-	116/-	116/-	116/-	137/9	148/-	132/1	151/11
Argentine	98/-	98/-	98/-	98/-	98/-	99/-	116/-	119/3	117/7	135/10
Siberian	93/-	98/-	94/-	94/-	95/-	95/-	n. q.	111/-	n. q.	131/6
Australian, salted	97/-	101/-	104/-	107/-	108/-	109/3	117/-	116/-	116/8	135/9
New Zealand, salted	105/-	111/-	111/-	116/-	118/-	119/6	122/6	118/3	119/11	137/8
CHEESE.										
Milan (lire per quintal):										
Parmigiano-Reggiano, 1st quality of last year's										
production	987.00	987.00	962.00	962.00	962.00	959.00	975.00	1,100.00	1,103.00	1,160.00
Green Gorgonzola, mature, choice	675.00	675.00	665.00	657.00	650.00	610.50	586.00	699.00	616.00	671.00
Rome: Roman pecorino, choice (lire p. quintal) .	1,275.00	1,275.00	1,275.00	1,275.00	1,275.00	1,275.00	1,175.00	1,128.00	1,121.00	1,207.00
Alkmaar: Edam 40 + (40 % butterfat, with the										
country's cheesemark, factory cheese, small;										
florins p. 50 kg.)	29.00	29.00	31.00	32.00	27.00	27.00	27.37	39.75	32.63	40.83
Gouda: Gouda 45 + (whole milk cheese, with										
the country's cheesemark, home made; florins										
p. 50 kg.)	32.50	33.50	33.50	33.00	32.00	31.50	36.25	45.75	37.93	45.56
Kempten (d): Pfennige per half kg.):										
Soft cheese, green (20 % butterfat)	22 1/2	22 1/2	22 1/2	22 1/2	22 1/2	22 1/2	25	21	24	27
Emmenthal from the Allgäu (whole milk										
cheese) 1st quality	77 1/2	77 1/2	77 1/2	77 1/2	72 1/2	77 1/2	94	91	97 1/2	97
London (d) (shillings per cwt.):										
English Cheddar	106/-	106/-	106/-	102/-	102/-	100/6	95/6	97/6	99/10	103/4
Canadian	73/-	73/-	71/-	71/-	70/-	69/6	72/9	81/6	75/9	93/11
New Zealand	65/6	65/6	65/6	66/-	65/6	65/10	71/3	76/1	63/2	82/2
Liverpool (d): Engl. Cheshire, ungraded (sh. p. cwt.)	100/4	105/-	105/-	105/-	100/4	96/10	119/-	95/8	94/3	97/5

a) Thursday prices. — b) Prices of preceding Tuesday. — c) Wednesday prices. — d) Average prices for weeks ending on preceding Wednesday.

1) The monthly averages are based on Friday quotations, the annual averages on the monthly. — 2) In place of 'Hull: Sakellaris'. — 3) The method of quotation has been changed as from January 1932; actual prices are generally 3 Pf. higher than according to the former system. — 4) Russian. — 5) Average price for all qualities.

THE TREND OF PRICES OF AGRICULTURAL PRODUCTS DURING OCTOBER 1932

In the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries. The indices collected together have been obtained according to different methods and criteria. A detailed account of the items included in each series and the system of construction of the index-numbers may be found in the volume published especially for this purpose by the Institute, entitled "Index-numbers of prices of agricultural products and other price-indices of interest to the farmer". We refer the reader to this volume for an exact interpretation of the significance of the different series of data.

Owing to the substantial divergence which often exists in the value and significance of the data available, much care is advisable in their utilisation from an international point of view. For this reason it has been considered opportune to reproduce all the data in their original form only, without attempting formally to unite them. The latter process, by a comparison of often heterogeneous data, might easily lead to the drawing of erroneous relations and conclusions.

But in addition to the original data, and subject to the above comments, a summary table is given below.

COUNTRIES	Percentage variations in the index-numbers for October, 1932			
	compared with those for September, 1932		compared with those for October, 1931	
	Index-numbers of prices of agricultural products	General index-numbers of prices	Index-numbers of prices of agricultural products	General index-numbers of prices
Germany	— 1.1	— 0.8	— 10.7	— 12.0
England and Wales	— 3.8	— 3.5	— 11.5	— 5.5
Argentina	— 5.9	—	— 14.4	—
Canada	— 4.3	— 2.8	— 17.6	— 7.7
Estonia	+ 2.9	—	— 16.3	—
United States	— 5.1	—	— 17.6	—
Finland	— 4.5	— 1.4	— 20.2	— 5.8
Hungary	— 0.9	— 0.0	+ 7.5	+ 9.8
Italy	— 6.3	— 11.1	— 14.8	— 17.5
New Zealand	— 0.6	— 0.8	— 3.1	— 7.7
Netherlands	+ 2.4	—	— 9.0	—
Poland	+ 4.0	+ 1.4	— 10.3	— 13.5
Yugoslavia	— 3.3	— 2.2	— 15.5	— 11.3
	f c) + 0.7	f + 3.4	f c) — 18.3	f — 8.1
	d) + 3.0		d) — 11.5	

a) Bureau of Agricultural Economics. — b) Bureau of Labor. — c) Products of the soil. — d) Animal products.

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER *

COUNTRIES AND CLASSIFICATIONS	Oct. 1932	Sept. 1932	August 1932	July 1932	June 1932	May 1932	Oct. 1931	Oct. 1930	Year	
									1931	1930
GERMANY (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of vegetable origin	100.3	104.2	108.6	116.6	118.3	121.2	112.5	108.8	119.3	115.3
Livestock	66.2	67.5	71.5	66.7	65.4	63.2	76.9	104.7	83.0	112.4
Livestock products	98.7	94.8	90.3	89.4	87.3	90.0	106.7	127.5	108.4	121.7
Feeding stuffs	85.2	87.1	90.5	94.2	93.8	96.1	95.5	87.2	101.9	93.2
Total agricultural products	88.0	89.0	91.0	92.5	92.1	93.4	98.5	109.3	103.8	113.1
Fertilizers 1).	69.4	69.2	68.5	67.7	71.5	70.7	74.4	80.4	76.5	82.4
Agricultural dead stock	113.9	114.2	115.1	115.5	116.0	116.4	129.5	138.6	130.7	139.4
Finished manufactures (« Gebrauchs- güter »)	113.0	113.8	114.3	116.0	117.3	118.8	135.8	154.4	140.1	159.3
General index-number	94.3	95.1	95.4	95.9	96.2	97.2	107.1	120.2	110.9	124.6
ENGLAND AND WALES (Ministry of Agriculture) Average of corresponding months 1911-13 = 100.										
Agricultural products	100	104	105	106	111	115	113	129	120	134
Feeding stuffs	89	92	97	94	94	97	83	82	83	96
Fertilizers	87	87	89	89	91	91	89	99	96	101
General index-number 2)	91.5	94.6	94.9	92.8	90.6	94.4	96.8	106.4	96.5	114.1
ARGENTINA 3) (Banco de la Nación Argentina) 1926 = 100.										
Cereals and linseed	60.0	64.1	62.9	60.4	59.8	59.9	63.3	70.7	55.8	82.3
Meat	65.3	68.3	70.1	71.5	73.7	74.5	97.9	114.4	94.3	109.2
Hides and skins	54.6	61.7	52.8	47.7	40.4	40.6	61.5	72.3	64.5	71.6
Wool	45.2	48.0	43.1	43.0	39.6	41.1	60.3	62.2	61.2	67.4
Dairy products	53.7	56.2	57.3	57.3	57.3	58.4	74.2	78.5	74.5	82.4
Forest products	65.2	62.5	61.6	63.3	66.3	66.3	83.5	108.7	99.3	107.9
Total agricultural products	59.0	62.7	61.1	59.2	58.3	58.6	68.9	77.8	63.8	85.9
CANADA 3) (Internal Trade Branch of the Dominion Bureau of Statistics) 1926 = 100.										
Field products (grain, etc.)	36.8	38.9	41.7	41.8	40.6	44.6	44.0	53.8	44.6	70.0
Animals and animal products	58.4	60.2	59.3	58.3	59.3	58.7	72.1	98.3	77.6	102.9
Total Canadian farm products	44.9	46.9	48.3	48.0	47.6	49.9	54.5	70.4	57.0	82.3
Fertilizers	72.3	72.0	72.4	72.0	72.0	70.5	75.5	89.2	83.0	88.2
Consumer's goods (other than foodstuffs, etc)	78.6	78.9	78.6	78.5	78.6	78.7	78.1	85.4	80.5	86.8
General index-number	65.0	66.9	66.8	66.6	66.6	67.7	70.4	81.0	72.2	86.6
ESTONIA (Central Bureau of Statistics) 1913 = 100.										
Commodities imported 4)	112	112	113	115	114	114	127	133	129	118
Commodities exported	57	54	51	53	53	56	70	89	76	103
Agricultural products imported and export- ed 4)	72	70	67	70	69	72	86	103	91	108

* For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication "Index numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer" (Rome, 1930), as well as to pages 77 to 79 of the "Crop Report" of January 1932 and to page 517 of the "Crop Report" of July 1932.

1) From July 1932 new series — 2) Calculated by the "Statist", reduced to base-year 1913 = 100. — 3) Average data for the year 1931 are provisional. — 4) From January 1932 the price of rye is excluded from the calculations.

COUNTRIES AND CLASSIFICATIONS	Oct. 1932	Sept. 1932	August 1932	July 1932	June 1932	May 1932	Oct. 1931	Oct. 1930	Year	
									1931	1930
UNITED STATES (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals	36	41	43	42	44	49	46	92	63	100
Fruits and vegetables	59	68	79	83	82	80	70	127	98	158
Meat animals	60	67	69	72	57	59	79	123	93	134
Dairy products	68	67	65	63	62	69	95	125	94	123
Poultry and poultry products	102	84	75	65	59	60	110	129	96	126
Cotton and cottonseed	51	57	51	41	37	42	42	76	63	102
Total agricultural products	56	59	59	57	52	56	68	106	80	117
Commodities purchased by farmers 1)	107	106	108	109	111	112	126	144	129	146
Agricultural wages 1)	84	—	—	—	—	—	113	150	116	152
UNITED STATES (Bureau of Labor) 1926 = 100.										
Grains	34.4	37.4	38.2	36.7	37.7	42.6	44.3	72.1	53.0	58.3
Livestock and poultry	45.0	51.2	52.8	54.1	46.7	44.4	57.6	82.4	63.9	89.2
Other farm products	52.1	52.1	50.8	48.4	48.2	49.6	64.2	86.3	69.2	91.1
Total farm products	46.9	49.1	49.1	47.9	45.7	46.6	58.8	82.6	64.8	88.3
Agricultural implements	84.7	84.9	84.9	84.9	84.9	84.9	92.3	94.9	94.0	95.1
Fertilizer materials	63.4	63.6	66.4	66.8	68.0	69.4	70.2	83.6	76.8	85.6
Mixed fertilizers	66.5	66.9	68.3	68.8	69.0	69.0	77.2	92.9	82.0	93.6
Cattle feed	42.7	45.9	47.4	42.2	42.1	45.9	49.4	89.6	62.7	99.7
Non-agricultural commodities	68.1	68.7	68.5	68.0	67.8	68.1	71.2	82.8	73.0	85.9
General index-number	64.4	65.3	65.2	64.5	63.9	64.4	68.4	82.6	71.1	86.3
FINLAND (Central Bureau of Statistics) 1926 = 100.										
Cereals	89	87	86	88	88	89	73	68	77	76
Potatoes	68	68	71	93	73	69	49	51	68	76
Fodder	67	65	66	67	70	72	53	57	63	62
Meat	56	61	64	65	63	63	54	77	64	88
Dairy products	76	74	71	73	68	72	77	83	76	84
Total agricultural products	72	72	72	73	71	72	67	75	72	82
General index-number	90	90	89	89	87	88	82	86	84	90
HUNGARY (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	75	80	80	87	90	90	88	83	—	—
General index-number	80	90	89	94	96	97	97	94	—	—
ITALY (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products	326.81	328.66	322.08	328.78	345.69	359.91	337.20	390.97	343.11	413.39
General index-number	304.33	306.70	300.06	299.93	304.22	312.54	329.85	386.60	341.57	411.04
NEW ZEALAND (Census and Statistics Office) Average 1909-13 = 100.										
Dairy produce	102.4	96.6	95.5	89.4	86.5	94.9	106.0	—	98.9	120.6
Meat	95.5	100.0	109.0	106.6	113.3	114.1	130.9	—	130.1	171.2
Wool	66.8	66.4	57.8	55.5	58.4	56.5	60.6	—	67.9	100.3
Other pastoral produce	63.1	53.4	57.9	59.0	50.9	59.0	66.4	—	76.7	124.3
All pastoral and dairy produce	88.1	86.0	85.8	82.2	82.7	86.5	96.9	—	96.5	127.9
Agricultural produce	95.4	95.7	83.1	84.8	105.5	111.2	103.2	—	115.5	126.7
All pastoral, dairy and agricultural produce	88.3	86.2	87.3	82.3	83.4	87.2	97.0	—	97.0	127.8

COUNTRIES AND CLASSIFICATIONS	Oct.	Sept.	August	July	June	May	Oct.	Oct.	Year	
	1932	1932	1932	1932	1932	1932	1931	1930	1931	1930
NORWAY 1)										
(Kgl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals	116	118	118	124	125	125	106	109	125	112
Potatoes	75	73	86	144	150	155	109	172	130	150
Pork	100	94	87	90	84	86	92	98	96	86
Other meat	105	109	115	117	108	116	127	193	218	138
Eggs	120	109	85	78	67	69	126	151	108	96
Dairy products	131	132	125	123	122	119	131	158	156	129
Concentrated feeding stuffs	104	106	107	105	104	106	97	118	121	103
Maize	92	95	94	90	87	89	73	107	108	82
Fertilizers	81	89	89	89	89	88	81	106	105	90
NETHERLANDS										
(Directie van den Landbouw)										
Average 1924-25 to 1928-29 = 100.										
Products of the soil	44	46	49	51	49	56	58	68	2) 58	2) 72
Animal products	55	51	49	52	53	47	58	80	2) 56	2) 77
Total agricultural products	52	50	49	52	52	49	58	77	2) 57	2) 76
Agricultural wages	83	83	83	83	83	83	95	100	2) 93	2) 99
General index-number 3)	52.1	51.4	50.7	51.4	52.8	53.5	60.2	75.1	77.8	65.7
POLAND 4)										
(Central Bureau of Statistics)										
1917 = 100.										
Products of the soil	41.8	42.7	43.7	47.3	54.6	62.3	51.0	45.8	56.7	53.9
Products of agricultural industry	53.8	55.2	59.1	61.2	65.7	71.6	61.8	63.1	78.4	65.9
Total products of plant origin	47.8	48.9	51.2	54.2	60.3	67.2	56.6	54.0	66.9	60.0
Animals	41.4	43.7	45.6	45.6	46.9	52.5	47.5	77.8	81.6	55.8
Dairy products	53.5	55.8	47.7	50.8	45.9	57.9	66.3	88.2	74.9	68.0
Total products of animal origin	46.7	49.0	46.8	48.2	46.8	53.2	55.3	62.4	78.6	60.8
Total agricultural products	47.0	48.6	48.9	51.2	53.7	61.4	55.6	64.3	71.3	59.7
Fertilizers	112.9	112.9	112.9	112.9	112.9	95.1	118.5	126.2	126.3	120.2
Industrial products	68.8	69.8	69.7	67.7	68.1	69.4	75.3	90.5	94.2	79.4
General index-number	58.8	60.1	60.2	60.4	61.8	66.1	66.3	78.4	83.8	70.5
YUGOSLAVIA										
(National Bank)										
of the Kingdom of Yugoslavia)										
1926 = 100.										
Products of the soil	58.1	57.7	64.0	73.2	72.2	73.5	71.1	77.3	96.7	74.3
Animal products	58.5	56.8	53.6	57.2	55.0	53.5	66.1	93.3	97.7	72.2
Industrial products	67.5	64.0	63.4	63.4	63.4	65.0	69.3	75.4	80.2	71.4
General index-number	63.9	61.8	62.6	65.6	64.9	65.4	69.5	80.9	88.8	72.9

1) The agricultural years refer to the period April 1-March 31. — 2) Agricultural year July 1-June 30. — 3) Calculated by the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100. — 4) Average data for the year 1931 are provisional.

(Rates for full cargoes)

1) Rates for parcels by liners. — 2) Insurances are not accepted for ships leaving Port Churchill after 15 October. — 3) Freight in gold \$ per 100 lbs. (in the case of a loss of 25 % in the value of the shilling 10 s. c. per 100 lbs. are equal to 2/8 per quarter). — 4) Vancouver-Shanghai gold \$ 2.35 p. short ton. — 5) "Down River" includes the ports of Buenos Aires and La Plata. — 6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa-Fé and Paraná) are subject to an extra rate of freight. — 7) The original data being quoted in "scale terms", 10 % is added to arrive at rates per long ton.

PERCENTAGE OF PREMIUM + OR OF LOSS (—) OF DIFFERENT CURRENCIES IN RESPECT OF THEIR PARITY
WITH THE DOLLAR 1)

¹⁾ The percentage represents the premium or the loss as far as possible on the national exchange. With the aid of the table of reciprocal parities of the currencies considered, given at the next page of this Crop Report, and the percentages indicated above, it is possible to obtain the reciprocal prices of the different currencies at the rates to which the quotations of the Monthly Crop Report refer.

RECIPROCAL PARITIES OF THE VARIOUS CURRENCIES IN WHICH ARE QUOTED THE PRICES IN THE MONTHLY AND THE QUARTERLY PRICE REVIEWS (1)

COUNTRIES	Unit of Currency	Germany	Argentina	Belgium	Canada United States	Denmark	Egypt	France Indo-China (2)	Hungary	India	Italy	Japan	Netherlands	Poland	Rumania	Czechoslovakia	Former Latin monetary union (3)	
Germany	Reichsmark	1.000	0.561	8.566	0.238	0.889	4.819	6.080	0.979	1.362	0.653	4.526	0.478	0.593	2.123	39.825	8.040	1.235
Argentina	Paper peso	1.782	1.000	15.263	0.424	1.584	8.586	10.833	1.744	2.427	1.163	8.064	0.851	1.056	3.872	70.959	14.326	2.200
Belgium	Franc	0.117	0.065	1.000	0.028	0.104	0.563	0.710	0.114	0.159	0.076	0.528	0.056	0.069	0.248	4.649	0.939	0.145
Canada	Dollar	4.198	2.356	35.959	1.000	3.731	20.230	25.524	4.110	5.718	2.740	19.000	2.006	2.488	8.914	167.181	33.751	5.183
United States																		
Denmark	Crown	1.125	0.631	9.637	0.268	1.000	5.422	6.840	1.101	1.532	0.734	5.092	0.538	0.667	2.389	44.803	9.045	1.389
Sweden																		
Egypt	Piastre	0.207	0.116	1.777	0.049	0.184	1.000	1.262	0.203	0.283	0.135	0.959	0.099	0.123	0.441	8.264	1.668	0.256
France	Franc	0.164	0.092	1.409	0.039	0.146	0.793	1.000	0.161	0.224	0.107	0.744	0.079	0.097	0.349	6.550	1.322	0.203
Indo-China	Piastre (2)																	
Great Britain	Shilling	1.021	0.573	8.750	0.243	0.908	4.923	6.211	1.000	1.391	0.667	4.623	0.488	0.605	2.169	40.680	8.213	1.261
Hungary	Pengő	0.734	0.412	6.289	0.175	0.653	3.580	4.464	0.720	1.000	0.479	3.323	0.351	0.435	1.559	29.240	5.903	0.905
India	Ruppee	1.532	0.860	13.125	0.365	1.362	7.384	9.316	1.500	2.087	1.000	6.935	0.732	0.908	3.254	61.020	12.319	1.892
Italy	Lira	0.221	0.124	1.892	0.053	0.196	1.065	1.345	0.216	0.301	0.144	1.000	0.106	0.131	0.469	8.799	1.776	0.273
Japan	Yen	2.092	1.174	17.924	0.498	1.860	10.084	12.723	2.049	2.850	1.366	9.471	1.000	1.240	4.443	83.333	16.824	2.583
Netherlands	Florin	1.687	0.947	14.454	0.402	1.450	8.132	10.260	1.652	2.298	1.101	7.637	0.806	1.000	3.583	67.200	13.567	2.083
Poland	Zloty	0.471	0.264	4.034	0.112	0.419	2.269	2.863	0.461	0.641	0.307	2.131	0.225	0.279	1.000	18.755	3.786	0.581
Rumania	Leu	0.025	0.014	0.215	0.006	0.022	0.121	0.153	0.025	0.034	0.016	0.114	0.012	0.015	0.053	1.000	0.202	0.031
Czechoslovakia	Crown	0.124	0.070	1.065	0.030	0.111	0.599	0.756	0.122	0.169	0.081	0.563	0.059	0.074	0.264	4.953	1.000	0.154
Former Latin monetary union (3)	Gold Franc	0.810	0.455	6.938	0.193	0.720	3.903	4.925	0.793	1.103	0.529	3.666	0.387	0.480	1.720	32.258	6.512	1.00

(1) Each figure gives the equivalent in the currency of the country indicated at the head of the respective column of the currency unit indicated at the beginning of the respective line. —
(2) 1 Gold piastre equals 10 francs. — (3) Data for purpose of comparison.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Austria, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Lithuania, Poland, Sweden and Switzerland: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

WORLD CEREAL PRODUCTION

The latest estimates of crop results that have reached the Institute in December, while involving some modifications in the estimate of world production made a month ago, confirm the main summing-up of the situation then given.

Wheat. — In Europe several countries have revised their preliminary estimates but the majority of these estimates only confirm the previous ones, the differences reported being quite negligible. This is the case as regards Germany, England and Wales, Scotland and Latvia. For Rumania and Yugoslavia on the other hand the new figures show that crops have been much smaller than expected though they already indicated a year of small crop. As regards the first-named country 1932 production falls from 74 to 60 million bushels, that is, to almost half the average and is the lowest since the war. The estimate for Yugoslavia also falls from 65 to 53 million bushels, almost half of the 1931 production. Normally such a small production would have caused an active import movement to meet the needs of internal consumption. Under present conditions there is no doubt that such a development must be excluded and that the deficit in wheat supply will be entirely met by the abundant supply of cheap maize in both countries.

The total European production in 1932, taking into account revisions, remains about 26 million bushels below that estimated last month; this decrease will not, however, have any influence on the international market, since it concerns two countries already recognized as being unable to export during the present season and not likely to become importers.

The fact of not being able to meet the internal deficit by imports when the exporting markets are burdened by excess stocks is one of the most characteristic features of the general crisis in which scarcity on the one hand and superabundance on the other cannot be balanced.

In North America the final data of the United States crop indicate an increase of 15 million bushels on the previous estimate. The final figures of Canadian production will be established in January.

In Asia, Japan and Syria have reduced their estimates but the production of these countries has small importance. Turkey announces a crop small in relation to those of preceding years but also for this country a revival of imports is out of the question. Algeria, after having lowered its estimate last month has raised it again to almost 33 million bushels against 26 million in 1931.

Finally, for the southern hemisphere, the first official estimate for Argentina is now available; it agrees perfectly with that forecast by us since October, when the probable production was placed at 230 million bushels. Australia has not changed its estimate of 200 million bushels but has intimated that the results of the crop may be larger than expected.

On the basis of the latest estimates world wheat production is as follows:

World wheat production (1).

	(Million bushels)						
	1932	1931	1930	1929	1928	1927	1926
Europe	1,488	1,433	1,363	1,453	1,411	1,275	1,216
North America	1,168 (2)	1,238	1,290	1,128	1,492	1,371	1,249
South America	276	268	272	220	400	338	272
Asia (1)	393	408	458	382	342	393	382
Africa	132	132	118	135	118	118	110
Oceania	206	195	220	136	169	128	169
<i>Totals</i>	<i>3,663</i>	<i>3,674</i>	<i>3,721</i>	<i>3,454</i>	<i>3,932</i>	<i>3,623</i>	<i>3,398</i>
U. S. S. R. . . . .	..	..	988	698	808	797	915

(1) Excluding China, Persia, Turkey and Iraq.

(2) Total obtained taking account of the underestimation by about 18 million bushels of the production of Canada.

Total world production excluding that of the U. S. S. R. has declined by 10 million bushels from the figure calculated last month to a figure 11 million bushels below that of 1931. These variations in the total volume of the crop are so small that the statistical situation in the current season as outlined in the last two numbers of the Crop Report remains practically unchanged. It may be summed up as follows:

World Wheat Position.

	World exportable surpluses	World, requirements	End of season exportable stocks
	(Million bushels)		
1932-33 forecast	1,260	630	630
1931-32	1,370	800	570
1930-31	1,378	823	555
1929-30	1,101	627	474
1928-29	1,419	927	492
1927-28	1,122	810	312
1926-27	1,066	820	246

Exportable supplies this season, though large, would not, therefore, be in themselves a factor depressing the market were there a fairly normal demand on the other side.

The latter, on the other hand, appears to be very small due both to the abundant or even very abundant crops obtained in the importing countries and to increasing restrictions imposed on world trade.

At present figures of the total exports of all the exporting countries during the first three months of the current season are available. They clearly show the decrease which has taken place in the trade movement of wheat compared with previous years.

World wheat net exports (including flour in terms of wheat) (1).

	(Million bushels)			
	1932-33	1931-32	1930-31	1929-30
August	41	66	77	71
September	51	78	74	57
October	62	74	84	60
November . . . . .	...	67	77	51
December . . . . .	...	64	59	50
January . . . . .	...	62	54	48
February . . . . .	...	73	69	45
March . . . . .	...	75	67	50
April . . . . .	...	70	62	42
May . . . . .	...	67	81	49
June . . . . .	...	59	67	51
July . . . . .	...	45	52	53
<i>Total Season</i> (*)	630	800	823	627
Total August-October	154	218	235	188
Percentage	25 %	27 %	29 %	30 %

(1) For detailed figures see table on p. 871.

(*) Forecast.

Prices have fallen sharply during the whole of this part of the season, reaching, at mid-December, the lowest level recollected by the oldest members of the trade. The drop in prices has not, however, brought about a revival in demand owing, on the one hand, to customs tariffs, import restrictions and other protective measures and, on the other hand, to the low purchasing power in countries which might otherwise consume more.

Argentina has taken the initiative of proposing to the coming World Economic Conference an agreement for the reduction of areas sown to wheat in the principal exporting countries. In the meantime, the United States has recently announced a diminution of 500,000 acres in winter wheat sowings.

The reduction is quite insignificant in relation to the area cultivated but assumes a greater importance if associated with the probable loss, as a result of drought damage, of about one fifth of the fields sown to wheat.

The reduction in area and the poor crop condition of winter wheat on December 1 indicate the possibility that the coming crop of the United States will fall below 400 million bushels, a figure even lower than that of the poor 1932 crop of 462 million and extremely low as compared with the 1931 crop of 787 million and the 1926-30 average of 588 million.

In the exporting countries of Europe and in the U. S. S. R. crop growth did not start in altogether satisfactory conditions owing to delay in sowing and to the irregularity of germination caused by lack of rains. In recent weeks, however, the weather has not been unfavourable and it is probable that the situation as regards the sowings has improved especially as temperatures have remained mild and no hard frost has been recorded. The crop situation in the remainder of Europe is about normal and the areas sown seem a little larger than last year.

Rye. — The latest revisions for Germany, Latvia and Yugoslavia in Europe and the United States in North America make changes of only small importance in the preliminary data.

The new estimate of the crop in Argentina indicates a much larger production than that of 1931-32 and the average.

Production of Rye.

COUNTRIES	193	1931	1930	1929	1928	1927	1926	1925
	(Million centals)							
Europe (23 countries)	522	430	511	520	500	450	419	529
North America (2 countries)	29	20	37	26	29	37	24	29
Argentina	7	4	2	2	4	4	2	2
TOTALS . . .	558	454	550	548	533	491	445	560
	(Million bushels)							
Europe (23 countries)	933	768	913	929	894	803	748	945
North America (2 countries)	51	35	67	47	51	67	43	51
Argentina	12	8	4	4	8	8	4	4
TOTALS . . .	996	811	984	980	953	878	795	1,000

World rye production (excluding the production of the U. S. S. R.) should be one of the largest of recent years.

Barley. — The various European countries have made only modest changes in their estimates. The volume of total production remains about the same as was calculated last month. A fairly considerable reduction has been made, however, in the estimate of the United States, now placed at 300 million bushels. The first forecast of the Argentine crop, on the contrary, indicates an exceptionally abundant production of 32 million bushels compared with the 20 million obtained in recent years.

Production of Barley.

COUNTRIES	1932	1931	1930	1929	1928	1927	1926	1925
(Million centals)								
Europe (26 countries)	359	306	340	370	328	295	304	302
North America (2 countries)	183	128	212	183	225	163	126	134
Asia (3 countries)	64	64	64	68	62	64	64	66
Africa (5 countries)	46	51	44	53	53	44	37	53
Argentina	15	11	7	9	9	7	9	9
TOTALS . . .	667	560	667	683	677	573	540	564
(Million bushels)								
Europe (25 countries)	749	638	707	772	684	615	634	629
North America (2 countries)	381	266	441	381	468	340	262	280
Asia (3 countries)	133	133	133	142	129	133	133	138
Africa (5 countries)	96	106	92	110	110	92	78	110
Argentina	32	23	14	18	18	14	18	18
TOTALS . . .	1,391	1,166	1,387	1,423	1,409	1,194	1,125	1,175

World production of barley in 1932 (excluding the U. S. S. R. crop) may be classed among the largest of recent years.

Oats. — As for barley, the volume of the European production remains about the same as was calculated in November. The production of Scotland, according to the first estimate, is larger than in 1931. In North America, the United States has reduced its previous estimate by 25 million bushels. The Argentine crop is forecast to be excellent; the figure of 83 million bushels is the highest recorded for several years.

Production of Oats.

COUNTRIES	1932	1931	1930	1929	1928	1927	1926	1925
(Million centals)								
Europe (25 countries)	556	405	505	615	558	518	547	505
North America (2 countries)	531	470	553	454	575	498	496	589
Asia and Africa (4 countries)	4	4	7	7	7	4	4	7
Argentina	26	22	15	22	20	18	22	26
TOTALS . . .	1,117	1,001	1,080	1,098	1,160	1,038	1,069	1,127
(Million bushels)								
Europe (25 countries)	1,736	1,578	1,578	1,922	1,743	1,619	1,709	1,578
North America (2 countries)	1,660	1,467	1,729	1,419	1,798	1,557	1,550	1,839
Asia and Africa (4 countries)	14	14	21	21	21	14	14	21
Argentina	83	69	48	69	62	55	69	83
TOTALS . . .	3,493	3,128	3,376	3,431	3,624	3,245	3,342	3,521

World production of oats (excluding the U. S. S. R. crop) is also very satisfactory, exceeding that of 1931 by 365 million bushels and the average of 1926-30 by 90 million bushels.

G. CAPONE.

CEREALS

Germany : Thanks to the mild weather which predominated during November good progress was made with field work. The winter cereals sown in good time have grown vigorously. The growth of late sowings is in many cases, backward and the crops had not yet come up at the beginning of December.

At the beginning of December the crop condition of cereals was as follows: winter wheat: 2.5 (against 2.5 at the beginning of November 1932 and 2.7 at the beginning of December 1931); winter spelt: 2.3 (2.5; 2.7); winter rye: 2.5 (2.6; 2.7) and winter barley: 2.5 (2.5; 2.6).

Austria : At the beginning of November, the first snows fell in the alpine valleys but the temperature rapidly rose again. Towards the middle of the month, the first frosts occurred, especially in the plains. During the last ten days of November some abundant rains improved moisture conditions in the eastern regions which had suffered from drought.

The generally mild weather and well distributed rainfall have brought about a vigorous growth of winter cereals. At the beginning of December, the aspect of all winter sowings was good and their crop condition was as follows: winter wheat: 2.2 (against 2.4 on November 1 this year and 2.5 on December 1, 1931); winter rye: 2.2 (2.2, 2.5) and winter barley: 2.1 (2.2, 2.5).

Belgium : During November the weather was generally fine and mild for the season. Fairly abundant rains fell in the latter half; towards the end of the month the sky cleared and some slight nocturnal frosts occurred. The winter cereal sowings began very late owing to the excessive moisture present in the soil. The wheat sowings have not yet been completed and the area sown will probably be smaller than that of last year. Purchases of selected seed have been limited.

The sowings of all winter cereals have been effected under average conditions and germination is regular.

Bulgaria : Despite the favourable weather conditions during November, which permitted the sowing of winter cereals under good conditions, the deficiency of moisture in some regions hindered the complete sowing of the whole of the area intended this year.

Spain : Conditions generally favoured winter crops.

Irish Free State : Autumn sowings were carried out under exceptionally good conditions, the autumn having been one of the most favourable for farming operations experienced in recent years.

France : November was mild with regular precipitation. Sowings were made under very favourable conditions and germination is regular. The area sown this autumn appears to be at least as large as last year.

The first week of December was marked throughout the area by a fall of temperature and some frosts, which were very beneficial to the soil; in the West, however, the weather remained too mild and damp and the situation was less satisfactory.

Great Britain and Northern Ireland : The weather in November was mild and, in the latter part of the month, very wet. In the first part of the month progress was made in cultivation and sowings but the wet conditions later caused delay in the

Cereals.

COUNTRIES	†) AREA						†) PRODUCTION								
	1932	1931	Average	%	Aver.	1932/33	1932	1931	Average	1932	1931	Average	%	1932/33	Aver.
	1932/33	1931/32	1926 to 1930	1932/33			1932/33	1931/32	1926 to 1930	1932/33	1931/32	1926 to 1930	1932/33		
	1931/1932	1931/1932	1926/27 to 1930/31	1931/1932			1926/27 to 1930/31	1931/1932	1926/27 to 1930/31	1931/1932	1926/27 to 1930/31	1931/1932			
	1,000 acres					% = 100	1,000 centals				1,000 bushels				% = 100

WHEAT.

Germany	5,634	5,356	4,181	105.2	134.8	110,300	93,329	74,380	183,829	155,545	123,964	118.2	148.3
Austria	536	517	508	103.7	105.5	7,804	6,605	6,946	13,007	11,009	11,576	118.2	112.4
Belgium	391	381	384	102.4	101.7	9,060	8,291	8,731	15,099	13,817	14,551	109.3	103.8
Bulgaria	3,077	2,964	2,754	103.8	111.7	30,332	36,718	26,200	50,553	61,195	43,666	82.6	115.8
*Denmark	245	259	257	94.7	95.4	...	6,032	6,285	...	10,053	10,475	...	...
Spain	11,189	11,245	10,786	99.5	103.7	107,102	80,657	85,802	178,499	134,426	143,001	132.8	124.8
Estonia	128	99	74	129.0	173.3	1,245	1,043	707	2,075	1,738	1,178	119.4	176.1
Finland	50	47	40	106.8	126.6	756	696	554	1,260	1,161	923	108.6	136.5
France	13,235	12,840	13,052	103.1	101.4	198,818	158,473	162,547	331,357	264,116	270,906	125.5	122.3
Engl. and Wales .	1,288	1,197	1,460	107.6	88.2	24,752	21,532	28,378	41,253	35,887	47,296	115.0	87.2
Scotland	52	50	57	104.1	91.9	1,344	1,075	1,335	2,240	1,792	2,225	125.0	100.7
*N. Ireland . . .	3	3	5	107.8	65.0	...	64	112	...	106	187	...	...
Greece	1,496	1,496	1,300	100.0	115.1	11,685	6,737	7,152	19,474	11,228	11,920	173.4	163.4
Hungary	3,897	4,011	3,953	97.2	98.6	35,156	43,531	49,246	58,593	72,550	82,075	80.8	71.4
Italy 1)	12,237	11,884	12,083	103.0	101.3	165,679	146,872	133,831	276,127	244,782	223,048	112.8	123.8
Latvia	255	215	151	118.8	168.7	3,175	2,033	1,607	5,292	3,388	2,679	156.2	197.6
Lithuania	514	478	401	107.4	128.1	5,615	5,004	4,372	9,359	8,340	7,287	112.2	128.4
Luxemburg	22	23	30	97.8	73.9	298	244	331	496	407	551	122.0	90.0
Malta	10	10	9	99.2	103.9	181	166	179	301	277	298	108.6	101.0
Norway	28	29	27	97.0	103.1	471	355	415	785	592	692	132.7	113.4
Netherlands . . .	293	192	137	152.2	212.9	8,217	4,051	3,660	13,694	6,751	6,100	202.9	224.5
Poland	4,266	4,495	3,477	94.9	122.7	33,534	49,933	38,519	55,888	83,220	64,197	67.2	87.1
Portugal . . . .	...	1,271	1,082	...	...	10,883	7,799	6,262	18,138	12,999	10,437	139.5	173.8
Rumania	7,091	8,566	7,625	82.8	93.0	35,797	81,181	66,443	59,660	135,299	110,736	44.1	53.9
Sweden	747	683	544	109.4	137.2	15,499	10,829	10,276	25,830	18,048	17,125	143.1	150.8
Switzerland 2) . .	182	179	175	101.5	103.8	3,389	3,294	3,372	5,647	5,489	5,619	102.9	100.5
Czechoslovakia . .	2,064	2,047	1,899	100.9	108.7	32,242	24,739	29,058	53,736	41,232	48,428	130.3	111.0
Yugoslavia	4,820	5,289	4,768	91.1	101.1	32,067	59,274	48,794	53,444	98,789	81,322	54.1	65.7
Total Europe . . .	§ 74,773	75,564	70,957	99.0	105.4	885,401	854,461	799,097	1,475,636	1,424,077	1,331,800	103.6	110.8
*U. S. S. R. . . .	85,940	92,074	74,445	93.3	115.4	...	...	504,153	...	...	840,238	...	...
Canada	27,175	26,115	23,926	104.1	113.6	258,720	182,486	261,452	431,200	304,144	435,744	141.8	99.0
United States (m) .	33,656	41,357	38,202	81.4	88.1	277,291	472,436	352,524	462,151	787,393	587,541	58.7	78.7
(s)	21,521	13,987	21,243	153.9	101.3	158,808	67,696	162,919	264,680	112,826	271,532	234.6	97.5
Mexico	1,066	1,501	1,278	71.1	83.4	5,353	9,736	6,724	8,921	16,226	11,207	55.0	79.6
Total North Amer. .	83,418	82,960	84,649	100.6	98.5	700,172	732,354	783,619	1,166,952	1,220,589	1,306,024	95.6	89.4
Korea . . . . .	...	817	882	...	...	4,983	5,204	5,422	8,305	8,340	9,037	99.6	91.9
India	33,749	32,189	31,485	104.8	107.2	202,182	208,432	199,203	336,971	347,387	332,005	97.0	101.5
Japan	1,247	1,228	1,185	101.5	105.2	18,802	18,535	17,819	31,336	30,892	29,699	101.4	105.5
Syria and Leban. .	1,087	1,167	1,118	93.1	97.2	5,895	8,252	8,883	9,825	13,753	13,971	71.4	70.3
Total Asia	§ 36,900	35,401	34,670	104.2	106.4	231,862	240,224	230,827	386,437	400,372	384,712	96.5	100.4
Algeria	3,703	3,640	3,738	101.7	99.1	19,511	15,390	17,755	32,518	25,649	29,592	126.8	109.9
Egypt	1,762	1,649	1,583	106.8	111.3	31,552	27,644	24,460	52,586	46,072	40,766	114.1	129.0
Eritrea	15	22	23	66.7	65.8	88	18	44	145	29	73	...	...
*Kenya 3)	40	43	67	93.4	59.9	...	174	404	...	290	674	...	...
French Morocco . .	2,450	2,537	2,699	96.6	90.8	13,179	17,870	16,553	21,965	29,783	27,588	73.7	79.6
Tunis	2,100	1,977	1,774	106.2	118.4	8,819	8,378	6,905	14,697	13,962	11,508	105.3	127.7
Total Africa . . .	10,030	9,825	9,817	102.1	102.2	73,149	69,300	65,717	121,911	115,495	109,527	105.6	111.3
Argentina	4) 19,791	4) 17,295	4) 20,901	114.4	94.7	138,892	135,556	150,756	231,482	225,922	251,255	102.5	92.1
*Chili	1,570	1,517	1,635	103.5	96.1	...	12,712	16,597	...	21,187	27,661	...	...
*Uruguay	843	1,080	1,056	78.1	79.8	...	6,748	7,016	...	11,246	11,693	...	...
Australia	15,585	14,500	14,387	107.5	108.3	120,000	113,792	93,450	200,000	189,653	155,748	105.5	128.4
*New Zealand . . .	294	281	246	104.8	119.3	...	...	...	...	...	...	...	...
GRAND TOTALS . .	§ 240,497	235,545	235,381	102.1	102.2	2,149,476	2,145,687	2,123,466	3,582,418	3,576,108	3,539,066	100.2	101.2

RYE.

Germany	10,996	10,788	11,616	101.9	94.7	184,386	147,269	165,770	329,262	262,982	296,018	125.2	111.2
Austria	944	934	942	101.1	100.3	13,358	10,601	11,143	23,853	18,931	19,898	126.0	119.9
Belgium	573	553	569	103.6	100.7	11,244	11,470	11,862	20,078	20,483	21,182	98.0	94.8
Bulgaria	544	597	521	91.1	104.3	5,676	6,760	4,716	10,136	12,072	8,422	84.0	120.3
*Denmark	296	332	415	89.2	71.3	...	4,707	5,932	...	8,406	10,593	...	...

COUNTRIES	AREA						PRODUCTION									
	1932	1931	Average	1932		1932	1932	1931	Average	1932	1931	Average	1932			
	1932/33	1931/32	to 1930	1932/33	1932/33		1931/32	to 1930	1932/33	1931/32	to 1930	1932/33	1931/32	to 1930		
	1932/33	1931/32	to 1930	1932/33	1931/32		to 1930	1932/33	1931/32	to 1930	1932/33	1931/32	to 1930			
	1,000 acres			1,000 cents			1,000 bushels			1,000 bushels						
Spain	1,517	1,516	1,658	100.1	91.5	13,317	11,817	12,420	23,780	21,103	22,179	112.7	107.2			
Estonia	364	356	351	102.2	103.5	3,700	3,259	3,515	6,606	5,820	6,277	113.5	105.3			
Finland	544	554	540	98.2	100.7	7,639	6,604	6,663	13,641	11,792	11,898	115.7	114.7			
France	1,755	1,760	1,899	99.7	92.4	19,705	16,530	18,253	35,188	29,519	32,594	119.2	108.0			
Greece	180	172	131	105.1	137.6	777	1,008	898	1,378	1,860	1,603	76.6	85.9			
Hungary	1,574	1,486	1,631	105.9	96.5	18,035	12,136	16,374	32,206	21,672	29,240	148.6	110.1			
Italy 1)	294	304	305	96.6	96.2	3,584	3,652	3,584	6,400	6,521	6,401	98.1	100.0			
Latvia	593	572	628	103.7	94.5	6,604	3,144	5,448	11,793	5,615	9,729	210.0	121.2			
Lithuania	1,195	1,257	1,164	95.0	102.7	11,653	9,118	11,307	20,808	16,282	20,192	127.8	103.1			
Luxembourg	17	16	18	108.1	97.1	231	188	219	413	336	391	123.1	105.7			
Norway	16	15	20	107.0	79.8	295	212	318	527	378	569	139.4	92.7			
Netherlands	407	445	485	91.6	84.1	7,650	7,933	8,698	13,660	14,167	15,532	96.4	88.0			
Poland	13,951	14,263	14,078	97.8	99.1	141,343	125,722	137,337	252,399	224,504	245,246	112.4	102.9			
Portugal	...	427	407	...	...	3,590	2,839	2,446	6,411	5,070	4,369	126.4	146.7	
Rumania	859	1,006	779	85.4	110.2	7,275	7,819	7,123	12,992	13,962	12,721	93.0	102.1			
Sweden	514	511	686	100.5	74.9	9,722	6,577	9,925	17,362	11,745	17,723	147.8	98.0			
Switzerland	45	46	49	99.5	92.3	833	785	894	1,488	1,402	1,597	106.2	93.2			
Czechoslovakia	2,569	2,470	2,584	104.0	99.4	47,970	30,593	36,765	85,661	54,631	65,651	156.8	130.5			
Yugoslavia	600	603	542	99.5	110.8	4,664	4,264	4,144	8,328	7,614	7,399	109.4	112.5			
Total Europe	§ 40,478	40,651	41,603	99.6	97.3	523,246	430,300	479,822	934,370	768,401	856,831	121.6	109.1			
* U. S. S. R.	65,731	68,380	65,482	96.1	100.4	...	...	492,031	...	...	878,629	...	...	
Canada	773	778	955	99.4	80.9	5,565	2,980	8,685	9,937	5,322	15,509	186.7	64.1			
United States	3,271	3,060	3,312	106.9	98.8	22,319	17,935	22,692	39,855	32,026	40,522	124.4	98.4			
Total North Amer.	4,044	3,838	4,267	105.4	94.8	27,884	20,915	31,377	49,792	37,348	56,031	133.3	88.9			
Algeria	4	3	4	119.9	109.6	20	20	28	35	37	49	96.9	71.8			
* French Morocco	2	2	2	94.5	105.3	...	8	11	...	14	19	...	...	
Argentina	1)	1,624	1)	1,378	1)	1,065	117.8	152.4	6,614	5,456	3,329	11,811	9,744	5,945	121.2	198.7
* Chili	7	7	8	104.3	92.1	46	71	...	82
GRAND TOTALS	§ 46,150	45,870	46,939	100.6	98.3	557,764	456,697	514,551	996,008	815,530	918,856	122.1	108.4			

BARLEY.

Germany	3,875	4,001	3,733	96.8	103.8	70,872	66,540	64,324	147,653	138,627	134,011	106.5	110.2				
Austria	428	416	387	103.0	110.6	5,654	4,775	5,531	13,862	9,948	11,523	139.3	120.3				
Belgium	89	70	78	126.9	114.2	2,068	1,705	1,862	4,308	3,542	3,879	121.3	111.1				
Bulgaria	568	607	591	93.6	96.2	6,769	7,949	6,607	14,102	16,560	13,765	85.2	102.5				
* Denmark	851	889	863	95.8	98.6	...	21,107	21,063	...	43,974	43,882	...	...		
Spain	4,837	4,644	4,481	104.2	107.9	61,087	43,548	45,265	127,267	90,727	94,304	140.3	135.0				
Estonia	266	279	283	95.4	93.9	1,991	2,840	2,512	4,147	5,918	5,233	70.1	79.3				
* Irish Free State	103	116	125	89.0	82.4	...	2,362	2,939	...	4,921	6,122	...	...		
Finland	300	276	276	109.1	108.8	3,847	3,086	3,220	8,015	6,430	6,708	124.6	119.5				
France	1,859	1,865	1,721	99.7	108.0	25,766	22,911	23,904	53,680	47,732	49,801	112.5	107.8				
Engl. and Wales	963	1,029	1,104	93.6	87.2	17,181	17,294	20,300	35,793	36,029	42,293	99.3	84.6				
Scotland	69	88	112	78.4	61.6	1,478	1,658	2,249	3,080	3,453	4,685	89.2	65.7				
Greece	574	550	472	104.2	121.4	5,512	3,430	3,333	11,483	7,146	6,945	160.7	165.3				
Hungary	1,165	1,165	1,077	100.0	108.2	15,599	10,496	13,327	32,498	21,867	27,765	148.6	117.0				
Italy 1)	530	538	579	98.6	91.6	5,538	5,310	5,257	11,537	11,062	10,933	104.3	105.3				
Latvia	457	451	436	101.4	104.8	4,247	4,228	4,849	8,849	8,809	7,213	100.5	122.7				
Lithuania	495	474	499	104.4	99.2	4,883	5,205	4,796	10,173	10,845	9,992	93.8	101.8				
Luxembourg	10	11	9	89.9	114.1	132	128	115	276	266	240	103.6	115.0				
Malta 5)	6	7	7	90.3	94.0	129	137	141	269	285	294	94.4	91.8				
Norway	137	138	142	98.9	96.6	2,677	2,019	2,341	5,578	4,207	4,877	132.6	114.4				
Netherlands	50	71	71	70.3	70.0	1,301	1,572	1,960	2,710	3,274	4,084	82.8	66.4				
Poland	2,982	3,144	2,905	94.8	102.6	35,891	32,534	31,486	70,607	67,781	65,598	104.2	107.6				
Portugal	...	170	175	...	...	1,151	972	885	2,398	2,025	1,845	118.4	130.0				
Rumania	4,411	4,742	4,494	93.0	98.1	39,463	31,182	42,194	82,216	64,964	87,906	126.6	95.1				
Sweden	292	311	333	94.0	87.7	4,850	5,143	5,394	10,105	10,716	11,237	94.3	89.9				
Switzerland	17	18	16	98.6	107.7	287	271	263	597	565	549	105.7	108.9				
Czechoslovakia	1,759	1,775	1,753	99.1	100.3	33,177	23,691	28,347	69,121	49,557	59,057	140.0	117.0				
Yugoslavia	1,006	1,065	986	94.5	102.0	8,631	8,640	8,383	17,982	18,000	17,464	99.9	103.0				
Total Europe	§ 27,315	27,905	26,720	97.9	102.2	359,181	307,264	327,458	748,306	640,145	682,221	116.9	109.7				
* U. S. S. R.	16,529	16,854	18,169	96.9	89.9	...	...	130,089	...	...	271,024	...	...		
Canada	3,742	3,768	4,704	99.3	79.6	39,831	32,344	54,795	82,981	67,383	114,158	123.1	72.7				
United States	13,213	11,419	11,231	115.7	117.6	143,976	95,227	126,785	299,950	198,389	264,139	151.2	113.6				
Total North Amer.	16,955	15,187	15,935	111.6	116.4	183,807	127,571	181,580	382,931	265,772	378,297	144.1	101.3				

COUNTRIES	1) AREA					1) PRODUCTION							
	1932 — 1932/33	1931 — 1931/32	Average 1926 to 1930 1926/27 to 1930/31	% 1932 1932/33		1932 — 1932/33	1931 — 1931/32	Average 1926 to 1930 1926/27 to 1930/31	1932 — 1932/33	1931 — 1931/32	Average 1926 to 1930 1926/27 to 1930/31	% 1932 1932/33	
				1931 — 1931/32	Aver. 1931/32 = 100							1931 — 1931/32	Aver. 1931/32 = 100
1,000 acres					1,000 centals			1,000 bushels					
Korea	2,206	2,191	2,252	100.7	98.0	21,161	20,093	17,617	44,086	41,862	36,702	105.3	120.1
Japan	2,107	2,097	2,265	100.5	93.0	37,316	36,730	38,870	77,744	76,522	80,980	101.6	96.0
Syria and Lebanon	766	818	746	93.7	102.7	4,398	6,812	8,299	9,163	14,193	17,291	64.6	53.0
Total Asia	5,079	5,106	5,263	99.5	96.5	62,875	63,635	64,786	130,993	132,577	134,973	98.8	97.0
Algeria	3,279	3,178	3,505	103.2	93.6	14,330	12,993	16,886	29,855	27,069	35,181	110.3	84.9
Egypt	366	306	364	119.6	100.4	5,792	4,653	5,379	12,067	9,694	11,206	124.5	107.7
Eritrea	99	62	54	160.0	183.5	617	445	144	1,286	928	299	138.6	429.4
French Morocco	2,930	3,222	2,995	90.9	97.8	17,882	28,335	21,933	37,254	59,032	45,693	63.1	81.5
Tunis	1,483	1,223	1,235	121.2	120.1	7,496	3,968	4,063	15,616	8,268	8,465	188.9	184.5
Total Africa	8,157	7,991	8,153	102.1	100.1	46,117	50,394	48,405	96,078	104,991	100,846	91.5	95.3
Argentina	1,520	1,439	1,276	105.6	119.1	15,432	10,620	7,668	32,151	22,125	15,976	145.3	201.3
*Chile	111	106	167	104.8	66.7	...	1,487	2,900	...	3,097	4,980	...	...
*Uruguay	10	10	9	106.2	117.0	...	71	66	...	148	138	...	...
*New Zealand	19	27	24	70.3	78.1	—	—	—	—	—	—	—	—
GRAND TOTALS	59,026	57,628	57,347	102.4	102.9	667,412	559,484	629,897	1,390,459	1,165,610	1,312,313	119.3	106.0

OATS.

Germany	8,118	8,310	8,634	97.7	94.0	146,612	136,795	144,210	458,160	427,482	450,653	102.2	101.7
Austria	784	777	759	100.9	103.4	10,020	7,321	9,645	31,312	22,877	30,141	136.9	103.9
Belgium	714	729	682	98.0	104.7	15,283	15,483	15,044	47,790	48,384	47,013	98.8	101.7
Bulgaria	281	295	335	95.3	83.9	2,489	2,754	2,327	7,777	8,605	7,272	90.4	106.9
*Denmark	983	937	999	105.0	98.4	—	20,624	21,386	—	64,448	66,832	—	—
Spain	1,926	1,986	1,902	97.0	101.3	17,165	13,335	13,333	53,639	41,670	41,664	128.7	128.7
Estonia	356	367	356	97.2	100.0	2,790	3,615	2,807	8,719	11,296	8,772	77.2	99.4
*Irish Free State	623	623	650	100.0	95.8	—	11,666	14,628	—	36,457	45,713	—	—
Finland	1,119	1,149	1,100	97.4	101.8	14,573	14,684	12,952	45,539	45,886	40,475	99.2	112.5
France	8,418	8,564	8,584	98.3	98.1	113,083	101,213	109,233	333,383	316,288	341,352	111.7	103.5
Engl. and Wales	1,577	1,652	1,802	95.5	87.5	28,022	27,774	32,032	87,570	86,793	100,098	100.9	87.5
Scotland	867	835	893	103.9	97.1	16,710	13,933	15,573	52,220	43,540	48,664	119.9	107.3
*N. Ireland	286	286	312	100.0	91.7	—	5,065	6,312	—	15,827	19,725	—	—
Greece	367	344	279	106.7	131.4	1,984	1,688	1,595	6,200	5,274	4,985	117.6	124.4
Hungary	575	596	665	96.5	86.4	6,243	4,278	7,753	19,510	13,368	24,227	146.0	80.5
Italy 1)	1,113	1,146	1,255	97.1	88.6	13,378	12,629	13,112	41,805	39,467	40,974	105.9	102.0
Latvia	802	795	735	100.9	109.1	7,121	7,555	5,646	22,252	23,611	17,644	94.2	126.1
Lithuania	931	900	828	103.4	112.4	7,981	8,981	7,311	24,940	28,065	22,846	88.9	109.2
Luxemburg	74	75	72	98.9	102.9	1,124	871	984	3,514	2,721	3,076	129.1	114.2
Norway	235	237	241	99.1	97.4	4,250	3,038	4,124	13,282	9,494	12,889	139.9	103.1
Netherlands	350	369	378	94.9	92.5	6,693	6,331	7,341	20,916	19,784	22,941	105.7	91.2
Poland	5,486	5,367	5,125	102.2	107.0	52,468	50,915	52,374	163,963	159,109	163,668	103.1	100.2
Portugal	422	422	443	—	—	2,354	2,026	1,835	6,331	5,735	5,735	116.2	128.2
Rumania	1,956	2,154	2,757	90.8	71.0	16,755	14,776	24,354	52,360	46,175	76,107	113.4	68.8
Sweden	1,577	1,590	1,729	99.1	91.2	24,802	22,326	25,867	77,506	69,767	80,835	111.1	95.9
Switzerland	41	45	50	89.7	81.4	750	739	926	2,342	2,308	2,894	101.5	81.0
Czechoslovakia	2,020	2,031	2,073	99.4	97.4	36,681	26,998	30,809	114,628	84,368	96,276	135.9	119.1
Yugoslavia	810	936	937	86.5	86.4	5,935	5,837	7,283	18,548	18,242	22,759	101.7	81.5
Total Europe	40,919	41,671	42,614	98.2	96.0	555,276	505,895	548,470	1,735,250	1,580,905	1,713,960	109.8	101.2
*U. S. S. R.	35,149	42,492	43,286	82.7	81.2	—	—	342,579	—	—	1,070,551	—	—
Canada	13,157	12,871	12,971	102.2	101.4	134,258	111,615	134,725	419,556	348,795	421,014	120.3	99.7
United States	41,224	39,800	40,230	103.6	102.5	397,580	357,750	380,694	1,242,437	1,117,970	1,189,662	111.1	104.4
Total North Amer.	54,381	52,671	53,201	103.2	102.2	531,838	469,365	515,419	1,661,993	1,466,765	1,610,676	113.3	103.2
Syria and Leb.	28	27	42	102.3	66.6	299	228	287	934	711	897	131.3	104.1
Algeria	504	557	605	90.5	83.4	2,271	2,628	4,169	7,096	8,212	13,028	86.4	54.5
French Morocco	63	60	82	106.0	77.2	509	531	637	1,591	1,660	1,992	95.9	79.9
Tunis	86	67	109	129.6	79.3	617	728	780	1,929	2,274	2,429	84.8	79.1
Total Africa	653	684	796	95.7	82.3	3,397	3,887	5,586	10,616	12,146	17,446	87.4	60.8
Argentina	4) 3,652	4) 3,470	3,535	105.3	103.5	27,558	22,170	19,504	86,118	68,280	60,949	124.3	141.3
*Chile	174	166	203	104.9	86.0	—	1,575	2,171	—	4,923	6,785	—	—
*Uruguay	135	148	141	91.0	95.6	—	994	801	—	3,107	2,504	—	—
New Zealand	407	364	320	111.7	127.3	—	—	—	—	—	—	—	—
GRAND TOTALS	99,633	98,523	100,188	101.1	99.4	1,118,368	1,001,545	1,089,266	3,494,891	3,129,807	3,403,931	111.7	102.7

1) The two dates given refer to the years in which the harvest took place in the northern and southern hemispheres respectively. — 2) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production but not those of area are available. — * Countries not included in the totals. — w) Autumn crops. — s) Spring crops. — r) The figures for 1932 and 1931 have been calculated taking into account the results of the new agricultural survey. — 2) Including spelt and meslin. — 3) European crops only. — 4) Area sown. — 5) Barley and meslin.

northwest of England and in Scotland, especially on heavy land. In Scotland the protracted harvest also contributed to the delay in autumn sowings.

The mild weather favoured growth and germination has been satisfactory.

In Northern Ireland the yields of and quality of 1932 crops are satisfactory. Threshing continued in November.

Greece: Weather in November favoured sowings of winter crops, which were completed by the beginning of December under very good conditions.

The area sown to cereals is considerably larger than in previous years.

Though the area sown to meslin in 1932 decreased by 15 % production, estimated at 827,000 centals (1,425,000 bushels), exceeds the 633,000 (1,091,000) of 1931 by 30 % and the 1926-30 mean, 512,000 (883,000) by 60 %.

Hungary: During the first two weeks of the period November 9-December 9, the weather was characterised by temperatures somewhat below the average and by lack of moisture whereas, during the latter half of the period, temperatures were relatively high and rains fairly abundant.

At the end of the period considered the crop condition of the winter sowings was good. All of the sowings had come up well and were regular.

Italy: During November the weather was generally rainy; in some places precipitation was very abundant. In northern and central Italy frosts occurred in most districts. Sowings of wheat and other winter crops had been practically completed at the end of the month; the situation is good.

Latvia: Production of meslin in 1932 was 1,760,000 centals (3,034,000 bushels) against 1,901,000 (3,278,000) in 1931 and 1,406,000 (2,425,000) in 1926-30 (92.6 % and 125.1 %).

In general the temperature remained low during November with the exception of some days above the normal. The quantity of precipitation was nearly normal.

Poland: During the period 15 October to 15 November, precipitation was considered sufficient in 88 % of the correspondents' replies; temperature exceeded the average for the same period of a long series of years; 65 % of the replies report normal growth of winter crops, 25 % excellent growth and only 12 % backward growth.

Precipitation during the period under consideration was on the whole favourable to the winter cereals and their crop condition improved. Crop condition by the Polish system was as follows:

	15-XI-32	15-X-32	15-XI-31
Winter wheat	3.7	3.4	3.1
Winter rye	4.0	3.6	3.1
Winter barley	3.5	3.3	3.2

The Central Office of Statistics has, for the first time, made preliminary estimates of the probable production of straw the figures giving, however, only a general indication:

	Production	
	(000 centals)	(000 short tons)
Winter wheat	70,548	3,527
Winter rye	285,279	14,264
Winter barley	1,764	88
Spring wheat	5,953	298
Spring rye	661	33
Spring barley	42,549	2,127
Oats	82,012	4,101

Rumania : Towards the middle of November farm work had been completed in the mountainous regions and in the northern departments: The relatively higher temperature permitted the continuation of tillage and also of sowing during the latter half of the month in the South-west, in the Danube valley and in the Dobrudja.

During the period November 15-30, precipitation was sufficient throughout the country except in some departments of Muntenia and Dobroudja.

At the beginning of December, the condition of the winter sowings was excellent in Transylvania, good in Bukovina, Bessarabia and most of Moldavia (except in one department). In Muntenia, Oltenia and Dobrudja, the situation may be considered to be mediocre except in 4 departments (out of a total of 21 departments in the three provinces), where crop condition is bad.

Below are given the areas sown to winter cereals up to November 15, compared with the corresponding areas of the previous two years: winter wheat: 4,813,000 against 4,296,000 sown as on 15 November 1931 and 4,786,000, as on 15 November 1930; winter rye: 582,000 (521,000 and 601,000); winter barley: 136,000 (144,000 and 185,000).

It is estimated that the area sown this year to winter wheat will approach the normal area of recent years, that is, 6.4 to 6.9 million acres.

U. S. S. R. : On 20 November the area sown to winter cereals was estimated at 90,758,000 acres, 89.8 % of that planned.

In the last two decades of November rains in the Southwest and South of the European territory, in which the land is not yet under snow, were somewhat scarce. The situation improved towards the end of the month and in the first week of December, when more or less abundant rains fell in many parts of the above-mentioned areas.

Yugoslavia : During the first week of November the weather was rainy. The cold wind which began to blow in the second week cleared the sky and the weather turned dry and sunny; rainy, mild weather recurred, however, towards the end of the month. These conditions in general favoured the winter cereal sowings which, thanks to the adequacy of moisture, came up under good conditions.

Argentina : The first official estimates of cereal production are now known. For wheat, despite the damage caused by locusts in the provinces of Santa Fé and Entre-Rios and unfavourable weather during the ripening period, production is forecast to be 2.5 % above that of last year but 7.9 % below the average of the preceding quinquennium. The slight increase in production compared with that of last year is due to an extension of the area sown this year to wheat (14.4 %). As regards the other cereals, an increase is indicated on both last year and the average. The most marked increase is that for barley: 45.3 % and 101.3 % respectively. For oats the relations are 24.3 % and 41.3 % and for rye, 21.2 % and 98.7 % respectively.

Canada : Owing to an error in the telegraphic transmission of data from Canada, the figures given in the October Crop Report for wheat and rye sowings in 1932 for harvest in 1933 were incorrect as the figures were in fact the revised sowings in 1931 for harvest in 1932. The correct figures are as follows :

	1932-33	1931-32 (000 acres)	Average 1926-27 to 1930-31	% 1931-32 = 100	% 1932-33 Average = 100
Winter wheat	556	568	894	97.9	62.2
Winter rye	496	664	733	74.7	67.7

Production of mixed grains is estimated at 17,945,000 centals compared with 17,744,000 in 1931 and 17,159,000, the average for 1926-1930; percentages 101.1 and 104.6.

United States : In the week ended on November 23, the weather was cold and the crop condition of winter wheat in the central and southern sections of the Great Plains was poor. In the following week ended on November 30 winter grains were still in good condition from the Ohio Valley southward and eastward but the snow cover melted from the valley districts early in the week; no apparent damage was noted although some freezing and thawing occurred locally. In the west-central and southern Great Plains, including the immediate Southwest, winter grains were still badly in need of moisture with the crop deteriorating or making practically no advance. Condition remained poor in western parts of Kansas. Moisture was needed in some western districts, notably in California but in the Pacific Northwest conditions were quite favourable, although rather colder weather would have been beneficial to harden the crop.

According to a telegram of December 15, the weather during the week had been cold; crop condition of winter wheat was poor in the principal producing States, especially in the western section of Kansas.

Mexico : The mean temperature of October was above normal, weather was warm and wet, save in the North Pacific area, where precipitation was moderate. Preparations for sowings were favoured by good weather and the sowings themselves were made under satisfactory conditions. It was expected that the area sown this season to wheat would be above that of last season.

Uruguay : The preliminary estimate of the area sown this year to wheat indicates a considerable decrease compared with last year. The less important cereals have also been sown on decreased acreages due to the very unfavourable weather conditions during the period of preparation of the soil and the sowings. The damage caused by locusts in some departments is very serious. Rainfall during October favoured the crops but production is not expected to be satisfactory.

Cyprus : Weather conditions in November have been favourable for wheat sowings. Good rains have fallen and the preparation of the land for sowing has progressed normally. Early-sown fields of barley have germinated regularly and the favourable rains were expected to permit further sowings.

Japan : Weather has been favourable for wheat and barley and germination is regular.

Palestine : The comparatively limited areas sown with *afir* wheat and barley are in excellent condition, owing to favourable climatic conditions during November throughout the country, with the exception of the Beersheba District. Ploughing and sowing of winter wheat and barley are in progress and a good germination of early sown areas is noted. Ploughing and sowing of a limited area sown with oats for grain is in progress.

Syria and Lebanon : In Syria and Lebanon tillage for the winter sowings did not begin until towards the end of November due to the persistent drought. In Lebanon, the winter sowings, partly begun, were effected under poor conditions, the dry soil needing moisture. Agricultural operations were backward. In the Alawiyya State, on the contrary, work apparently proceeded normally despite the prolonged drought.

In the Jbel-Druze area the lack of rainfall greatly hindered the winter sowings; the soil is very hard. As regards the latter country, due to an error in the transmission of data, figures were published in the Crop Report for the production of spelt, mixed grain and oats; these were incorrect as such crops are not sown in Jbel-Druze.

Turkey: According to information received from the Ministry of Agriculture at Ankara wheat production in 1932 is estimated at 42,026,000 (centals (70,042,000 bushels) against 61,457,000 (102,426,000) in 1931 and 44,568,000 (74,278,000) in 1927-1930, a fall of 32 % and 6 % respectively in comparison with the latter figures. This estimate includes 5,300,000 centals (8,800,000 bushels) calculated approximately for the eight provinces of eastern Anatolia.

Algeria: Regular and fairly abundant rains in the first three weeks of November ended the dry spell which had persisted for at least a fortnight in the larger part of Algeria, namely in the West and centre. In these regions, in the departments of Algiers and Oran, due to the wet weather, sowings could not be actively continued until the last days of November; although the work is fairly well advanced on the European plantations, it is backward on native holdings due to lack of money. In the department of Constantine, the work has been hindered by the heavy rains and at the end of November moisture was in places reported to be excessive.

The condition of the sowings is on the whole satisfactory.

The first sowings, including those in dry soil, have come up regularly and fairly strongly in the centre and West.

Egypt: Weather was not favourable to wheat and barley crops in lower Egypt in the first week of November; it subsequently improved with benefit to the crops. Germination and growth of early crops have been satisfactory.

Tunis: Sowing has been effected under good conditions. The soil was in good condition at the beginning of December; precipitation was somewhat deficient. Germination was, on the whole, regular.

Australia (Telegram of 14 December): There is no change in the wheat situation.

New Zealand: Crop condition of oats, wheat and barley was good on 1 November.

MAIZE

United States: In the week ended on November 23 the maize harvest had almost been finished but was delayed during the week by very unfavourable weather. In the last week of the month moderate temperatures and much sunshine were favourable for husking corn in the western portion of the belt, while in the upper Mississippi Valley considerable snow disappeared. In the more eastern States, husking was not active because of unpleasant weather.

Indo-China: The crop was on the whole good due to the good yields in Tonkin which is responsible for almost half of the production in the Union, and in Cochinchina; the summer crop in Annam, which represents about one-fourth of the total, was very variable, due to the irregularity of the rains during the growing period; it is good on the whole in the centre and south and fair in the north; in Cambodia results were much below the average, drought having injured crops on the more elevated areas and excessive moisture having compromised yields on the lowlying lands

Egypt: Harvesting of the main *mili* crop in lower Egypt and in Upper Egypt was practically terminated; unit yields were generally estimated as average. Crop condition on 1 December was 101 as on 1 November and on 1 December 1931.

Maize.

COUNTRIES	AREA					PRODUCTION							
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932	
				1931	Average							1931	Average
1,000 acres					1,000 centals			1,000 bushels of 56 lbs					
Austria . .	148	152	145	97.2	102.4	2,690	2,794	2,568	4,803	4,990	4,479	96.3	107.2
Bulgaria . .	1,829	1,676	1,693	109.1	108.0	23,246	21,983	15,239	41,511	39,256	27,212	105.7	152.5
Spain . . .	1,082	1,053	1,044	102.8	103.7	14,775	14,778	13,215	26,384	26,389	23,598	100.0	111.8
*France . .	782	855	843	91.5	92.8	...	13,789	9,695	...	24,623	17,312	...	...
*Greece . .	587	618	513	95.0	114.5	...	3,499	3,597	...	6,248	6,423	...	...
Hungary . .	2,877	2,720	2,652	105.8	108.5	53,701	33,459	35,897	95,894	59,749	64,102	160.5	149.6
Italy 1) s	3,259	3,206	3,515	101.7	92.7	61,906	40,354	52,449	110,546	72,061	93,659	153.4	118.0
*Poland . .	363	308	225	117.6	161.1	...	2,266	2,167	...	4,046	3,870	...	...
Portugal . .	240	243	222	98.7	108.2	...	2,296	1,968	...	4,099	3,515	...	...
Rumania . .	...	939	861	...	...	8,947	9,824	8,217	15,976	17,543	14,673	91.1	108.9
Switzerland .	11,775	11,749	10,851	100.2	108.5	119,711	133,674	101,569	213,771	238,704	181,374	89.6	117.9
Czechoslov..	2	3	3	97.1	75.9	60	64	77	106	114	138	93.1	77.1
Yugoslavia..	331	344	347	96.2	95.6	6,819	5,020	5,272	12,176	8,965	9,415	135.8	129.3
U. S. S. R. .	6,442	6,168	5,734	104.4	112.4	99,646	70,623	65,918	177,940	126,113	117,711	141.1	151.2
Canada . .	9,084	9,741	8,483	93.3	107.1	...	...	69,622	...	...	124,325	...	...
United Stat.	137	132	159	104.0	86.3	2,929	3,051	3,172	5,231	5,449	5,665	96.0	92.3
Syria a. Leb.	107,729	105,301	99,449	102.3	108.3	1,628,505	1,437,691	1,441,334	2,908,045	2,567,306	2,573,817	113.3	113.0
Algeria . .	56	65	120	86.3	47.0	476	730	1,352	849	1,303	2,415	65.2	35.2
Eritrea . .	16	24	24	69.7	68.6	101	133	144	181	238	257	76.2	70.4
*Kenya 2) . .	7	22	16	33.3	47.6	66	240	97	118	429	174	27.5	67.9
It. Somalil.	177	161	199	110.4	89.1	...	1,525	2,804	...	2,724	5,008	...	...
Tunis 3) . .	24	53	39	45.1	61.0	213	521	417	380	931	745	40.8	51.0
TOTALS . .	44	45	41	99.0	108.2	121	110	109	217	197	194	110.0	111.3
TOTALS . .	136,697	133,652	126,693	102.3	107.9	2,023,912	1,775,049	1,746,986	3,614,128	3,169,737	3,119,628	114.0	115.9

* Countries not included in the totals. — s) Spring crop (maggengo). — d) Summer crop (cinquantino) — 1) The figures for 1932 and 1931 have been calculated taking into account the results of the new agricultural survey. — 2) European crop. — 3) Maize and sorghum.

Union of South Africa: October was on the whole hot and dry throughout the Union, rainfall being scattered and unsatisfactory. Good rains were required for ploughing and planting. In many cases ploughing had to be suspended owing to the hardness of the ground and the poor condition of the oxen.

THE WORLD RICE SITUATION

THE SITUATION IN THE MAJOR EXPORTING COUNTRIES.

The first estimate placed the area sown to padi in Burma this year at 12,442,000 acres, an increase of 0.1 % on the corresponding estimate of 1931-1932. The final estimate, being generally rather higher than that of October, will in all probability therefore be not less than 12½ million acres. Last year's

interruption of the normal process of extension in the rice area, with a fall of 3.9 % from the 1930-31 maximum of 13,022,000 acres was the most marked that has occurred in the twenty years for which statistics for all Burma are available. Prices were higher at sowing time this year than at the same period last year though they have remained at a low level, the marked rise in March having been a shortlived speculative movement.

The export surplus from the new crop in Burma is estimated at 6,962 million pounds of whole milled rice against last year's surplus of 5,853 million pounds. This increase may be credited to the favourable weather conditions.

Rice.

COUNTRIES	AREA					PRODUCTION							
	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33		1932/33	1931/32	Average 1926/27 to 1930/31	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33	
				1931/ 1932	Aver- age							1931/ 1932	Aver- age
1,000 acres			= 100	= 100	1,000 centals			1,000 bushels of 45 lbs			= 100	= 100	
Bulgaria . .	13	14	18	93.4	72.8	304	290	350	675	645	777	104.5	86.8
Italy 1) . .	335	359	350	93.2	95.6	14,476	14,598	14,689	32,169	32,440	32,642	99.2	98.6
United Stat.	869	978	962	88.9	90.3	17,710	20,705	19,402	39,356	46,012	43,115	85.5	91.3
*Korea . . .	3,824	4,104	3,922	93.2	97.5	...	63,283	62,987	...	140,625	139,967	...	...
Formosa (*a)	700	677	628	103.3	111.5	15,987	14,474	12,455	35,526	32,164	27,678	110.5	128.4
*India . . .	...	888	815	...	...	18,085	15,355	14,464	40,188	34,121	32,143	117.8	125.0
Indochina:	78,791	81,367	77,533	96.8	101.6	...	1,130,438	1,058,265	...	2,512,033	2,351,653	...	...
Annam (*c)	981	877	1,085	111.8	90.3	7,716	5,472	9,186	17,147	12,160	20,413	141.0	84.0
*Laos (*d)	1,409	1,411	1,464	99.8	96.2	14,771	10,737	12,408	32,824	23,859	27,573	137.6	119.0
Tonkin (v month)	1,137	1,161	1,118	97.9	101.7	...	7,275	7,716	...	16,167	17,147	...	...
Japan . . .	1,181	1,184	1,293	99.8	91.4	13,089	13,147	15,882	29,086	29,215	35,292	99.6	82.4
Java and (*e)	7,976	7,962	7,829	100.2	101.9	239,920	220,133	242,738	533,145	489,174	539,406	109.0	98.8
Madura (*f)	8,071	7,593	7,496	106.3	107.7	112,105	107,188	106,961	249,118	238,192	237,687	104.6	104.8
	1,063	1,087	1,127	97.7	94.3	9,094	8,796	9,601	20,209	19,547	21,336	103.4	94.7
TOTALS. . .	22,598	22,142	22,252	102.0	101.5	445,172	415,540	443,672	989,255	923,408	985,919	107.1	100.3

* Countries not included in the totals. — a) First crop. — b) Second crop. — c) First semester. — d) Second semester. — e) Irrigated rice. — f) Unirrigated rice. — 1) The figures for 1932 and 1931 have been calculated taking into account the results of the new agricultural survey.

The monsoon was on the whole normal. It extended into Burma on 23 May; in Lower Burma it was moderately defective in May, causing delay in transplanting, fairly strong in the first fortnight of June, weak in the second fortnight of June and slightly in excess in July; thereafter a break occurred from 10 to 28 August and in that month as a whole there was a slight to moderate defect; toward its close in the latter part of September it was especially strong. Rainfall continued nearly general in the first part of October. Rainfall since has been of a local or thunderstorm type.

In Cochin-China and Cambodia, from which the bulk of the export from French Indo-China is derived, drought in August hindered transplanting and dam-

aged rice already transplanted; in some districts of Cambodia nurseries had to be resown. In September, however, the rains permitted active growth and recovery was general. Second transplantings of main-crop padi were carried out satisfactorily in September in Mytho, Sadec and Vinhlong. In Cochin-China crop condition at the end of September was satisfactory save in the East, where transplanting was seriously retarded, in certain parts of the Centre where there was insufficient water or an invasion of brackish water and in some areas of Rachgia where serious losses on alkaline lands were reported. In Cochin-China and Cambodia as a whole insect damage is localized and not serious, attacks of hemiptera having been restricted by the September rains; in Cochin-China, however, the low level of the water is reported to have favoured rats, which normally cause very serious damage to the crop.

In Tonkin there was very little change in either area or production of padi of the fifth month; unirrigated padi suffered from drought, as is to be expected in the case of the spring crop, but the satisfactory results from the irrigated areas prevented production falling below the level of last year, though it remains 18 % below the five-year mean. As frequently happens, the quality of the crop was lowered by the rains at harvesting time. In Annam the area planted to padi of the first semester increased by 12 % and production by 41 % but remains respectively 10 % and 16 % below the five-year mean.

Drought prevailed in the first part of August in high-level padis in the Tonkin-North Annam area and irrigation was necessary; damage was reported particularly in Thanhhoa. Transplanting of main-crop rice of the tenth month in the intermediate and low-level padis was, on the other hand, retarded by the difficulty in evacuating water owing to the high level of the water courses. A second transplanting was necessary in August or September in certain relatively small areas, where inundation occurred. The abundant rains in September rather hindered tillering in lowlying areas. In Annam as a whole the area under the crop of the tenth month, which is the most important, remained practically the same as last year and therefore at a low level; thanks, however, to the recovery of the crop in September from the previous contretemps, production not only rose 38 % above the low level of last year but 19 % above the five-year mean.

In Siam the area planted up to the end of September in the 345 districts reporting by telegraph is estimated at 6,355,000 acres against 6,357,000 in the same districts and at the same date last year. The condition of the crop at the end of September was good in 19 provinces (including 14 in the five inner circles), fairly good in 36 (including 12 in the five inner circles) and not good in 2 (both in the five inner circles). Crop condition was reported as especially good in the inmost circles, Krungtep, Ayudhya and Nakon Chaisri. The five inner circles (corresponding to the former seven inner circles) are responsible for practically the entire export.

Taking the major exporting regions as a whole it would seem from the information at present available that the 1932-33 crop will not greatly exceed that of 1931-32, areas in Burma and in Siam together showing comparatively little change and crop condition being fair to good in either country, while in French Indo-China the rather less favourable conditions during the period of

transplanting in Cochin-China and Cambodia and in Tonkin may result in a smaller production. The trend of exports during the export season now at an end has been in the circumstances not unfavourable. Shipments from Rangoon to foreign ports in 1932 up to 19 November were 3,243 million pounds milled rice against 3,362 million up to the corresponding date in 1931. The falling-off has been chiefly in shipments to Singapore and the Far East; those to Ceylon have increased. Exports to India from Rangoon showed a marked fall from 1,695 million pounds to 915 million. Exports of rice and derivatives from Cochin-China and from French Indo-China as a whole up to the end of August were at a considerably higher level than in 1931, the principal decline having been in exports to Singapore and to the Netherlands East Indies.

Exports from Siam up to the end of September were also larger, by about 25 %, though, as in the cases of Burma and French Indo-China, there was a marked falling-off in those to Singapore, the increases in those to Hong-Kong, Japan, Ceylon and the Netherlands East Indies in the first half of the export season being more than sufficient to counterbalance this decrease.

THE SITUATION IN THE MINOR EXPORTING COUNTRIES.

Amongst the minor exporters, Italy, the most important, has a production 0.8 % below that of last year and 1.4 % below the five-year average; the slight decrease is consequent on reduced sowings, the results of the harvest terminated in November having been excellent despite the check to growth caused particularly in Lombardy by low temperatures at the end of May and beginning of June. Exports in the first nine months of 1932 showed a reduction of 11 % for milled rice and an increase of 1 % for brown rice while those of rough rice, a smaller proportion of the total, were 7 ½ times greater.

Spanish production has recovered from the low level of 1931 and is above the mean of 1926-30 though in Valencia, which is responsible for all but a small proportion of the total, the crop was rather backward and to this was added the difficulty in harvesting caused by heavy rains. Exports of milled rice, which account for almost all the trade, increased by 20 % in the first ten months of 1932.

In the United States the rice area was 11 % less than last year and 10 % below the 1926-30 mean, reductions being made in all four States. Production is estimated to be rather smaller in the three Southern States (Louisiana, Texas and Arkansas) and much smaller in California and the total is now estimated to be 14.5 % below that of 1931 and 9 % below the 1926-30 mean. In Texas the reduction was accentuated by the severe tropical storm of 13 August. Rains in September and October interfered with harvesting and threshing in Louisiana and Arkansas; in California, on the other hand, weather was ideal for the purpose. Due to the prospect of smaller production and to the unfavourable weather the new season opened with prices at a somewhat higher level than at the close of the 1931-32 season in July. Exports of rice and derivatives in August and September were larger than in the corresponding period of 1931 but stocks of

milled rice at mills, which were unusually large at the opening of the season, remained larger at the end of October than at the same date last year, being 223 million pounds against 188 million.

As regards Brazil it is reported from Sao Paulo, which in the four years ending 1930-31 produced 38 % of the total, that replanting was necessary, the first plantings having been lost as a result of the long drought. Exports in the first nine months of 1932 were little more than one-third of those in the corresponding period of 1931.

In Egypt this year the Government authorized an extension of rice sowings above the average, the water supply being plentiful. Weather favoured sowing, germination and subsequent growth of the summer (*sefi*) crop and the yield is estimated at 4 % above the average. The winter (*nili*) crop also progressed satisfactorily, harvesting of early-sown areas was completed in November and a 9 % increase in production was expected. Transplanted areas have given better yields than those broadcast.

CONDITIONS IN THE PRINCIPAL IMPORTING COUNTRIES

In India (excluding Burma), which is the principal importing market, the area sown to rice this season was, according to the October estimate, 2.9 % below that in 1931-32. The largest decrease has been in Bihar and Orissa, which is second only to Bengal in production; the decrease of 8.4 % in area under winter rice, which accounts for about three-fourths of the area in the province, is due to unfavourable weather; according to the second intermediate report on crop condition the total failure of the *hathia* rains reduced the condition of this crop to 73 % of the ten-year average but rains in November improved condition. In Bengal there has been only a slight decrease in the total area; winter rice, which accounts for about three-fourths of the area in that province, shows a slight increase; it was assisted by moderate rains at transplanting; harvesting was in progress by the end of November and continued in December. In Madras there has been an increase in area, particularly in the Godavari area; yield of first crop padi was normal; condition of the standing crop in mid-December was on the whole fair.

In China the crop this season appears to be a large one not only with respect to that of last year, which was seriously reduced by the great floods in the Yangtse valley, but with respect to the average. The crop in the areas flooded last year is reported to be especially good; crop results in Kiangsu, generally considered the leading rice province and of which the production naturally has an intimate relation to the Shanghai import trade, are particularly good. The crop in the South is also reported to be larger. While production is apparently, taking China as a whole, much larger than that of last year, stocks in the hands of merchants, on the other hand, were said to be smaller toward the end of the commercial year.

In Japan, while area has remained practically the same, the new crop, though still below the five-year average, is estimated to be 9 % larger than that of last

year, weather having been favourable. The initial carryover into the 1932-33 season is estimated to be rather smaller than that into the 1931-32 season. In Formosa the increase in production of the first crop, which is that exported to Japan, is also proportionately greater than the increase in area, exceeding last year's record and being no less than 28 % above the five-year average. The weather has also been favourable to germination, transplanting and subsequent growth of the second crop. The continued expansion of production in Formosa is due to the increasing adoption of new varieties and to the improved organization of marketing. In Korea the area showed a further decline, but production seems to have been 4 % greater than last season.

In Java and Madura the area under irrigated padi was increased this year and production is 5 % above that of 1931-32 and the average. Production of unirrigated padis, which are much less important, is also larger despite a decrease in area. Imports into the Outer Provinces in the first seven months of 1932 were 26.9 % less and those into Java and Madura in the first eight months 45.1 % less than in the corresponding periods of 1931.

In British Malaya the new crop was expected to be late in several important areas; net imports in the first nine months of 1932 showed a fall of 24.7 % from those of the corresponding period in 1931. From the Philippines it is reported that palay (padi) dealers are holding for a rise.

Argentina, the principal South American import market took 25 % less from non-European countries in the first ten months of 1932 than in the corresponding period of 1931, this reduction being about balanced by increased imports from Italy and Spain.

Of the four leading European importers only France shows any considerable increase in imports in the period for which 1932 statistics are available. In Germany the notable development of rice imports that distinguished 1931 and the first months of 1932 was not maintained; imports of unpolished rice, which are for by far the greater part derived from Burma, showed a decline of 5 % in the first ten months of 1932 and imports of polished rice, chiefly from Burma and the United States, a decline of 8 %. Imports into France in the first eight months of the year, continued, however, to grow, the increases for milled whole rice, flour and meal and for broken, both categories chiefly from French Indo-China, being respectively 49 % and 39 % and that for rough rice, which is derived for by far the greater part from Italy, 1 %.

The Netherlands rice trade, by reason of the large part played by the export of milled rice, was the first to show the effects of the general economic crisis; the import of rough rice, which is mainly from Burma, showed in the first eleven months of 1932 a fall of 51 %, while a similar fall occurred in that of milled rice, which is, however, much smaller.

Imports of all rice into the United Kingdom in the first eleven months of 1932 were 2 % greater than in the corresponding period of 1931; and imports from Spain and the United States were respectively 5 % and 8 % less, while those from British India increased by 25 %. The duty of 1 d. a pound on all rice produced outside the British Empire, which was ratified in October, is expected to bring a severe reduction in imports from foreign countries.

THE GENERAL OUTLOOK.

The demand position thus seems on the whole even less promising. While it remains uncertain whether the Indian market will have a greater or less capacity to absorb supplies, which are naturally drawn from Burma, all reports support the supposition that China will in the coming year require to import less than in the last year. In Japan and Formosa production has increased, while in the secondary importing countries of the Far East the process of extending internal production of rice continues. Above all the general economic depression has grown still more acute. Consequently, unless the total production of the three major exporters is distinctly smaller than it was last season, which seems unlikely, no immediate improvement in prices seems probable. Higher tariffs and depressed conditions in the main markets are likely to render competition in 1933 between exporters of high-grade rices still more acute.

C. J. ROBERTSON.

RICE

Formosa : Favoured by the weather, growing conditions of the second crop of rice were good and harvest progressed.

India : In the first half of November, variable rains, sometimes heavy in places, damaged winter paddy in some districts of Bengal. The weather was mostly dry in the latter half of the month and harvesting made progress. On November 30 the condition of standing crops was satisfactory. Rainfall in Bihar and Orissa was light to moderate in the first half of November, though heavy in a few districts at the beginning of the month and improved the condition of paddy. Rainfall in the latter half was light in places and decreased towards the end of the month when standing crops were in good condition. In Madras rainfall varied from moderate to heavy in places and on November 26 the condition of standing crops was fair. In the Central Provinces standing crops were in good condition on November 28.

Indo-China : Both in Tonkin and Annam the crops of the first semester were fair; drought and cold at the beginning of the year caused serious damage and the better moisture and temperature conditions, particularly in Tonkin, in April and May were unable entirely to restore the situation, at least in the unirrigated areas, so that yields, generally excellent as regards irrigated padi, are on the other hand very mediocre as regards unirrigated. Harvesting began in Tonkin in very favourable weather but was hindered by the later rains with the result that the later-harvested padi was badly dried and often of mediocre quality.

Preparation of the land and sowing was carried out in generally good conditions in Cochin-China and Cambodia and for the second crop in Tonkin and Annam. On the other hand a rather severe drought prevailed in August almost everywhere and particularly in Laos, interrupting transplantings in Cochin-China and Cambodia and causing not only delay but damage in the case of the first transplantings. The copious precipitation of September restored the situation almost everywhere, however, and at the beginning of October crop conditions was generally very satisfactory; no serious insect damage was reported and the second semester crops, harvested from November

to March and making up about five-sixths of the total production of French Indo-China, have a good appearance.

It is of course too early to make a precise forecast of production in Cochin-China and Cambodia, which accounts for almost half of the total and is especially important for export but the early crops of Tonkin and especially of Annam are fairly good. The crop of the second semester in Annam will, according to a preliminary official estimate, be not merely larger than the good crop of last year but the largest since 1922.

The relatively small first crop is thus compensated for so that the total production of Annam should be almost equivalent to the ten-year mean for 1921-30 while area is almost the same.

The increase over last season's production is due to some small extent to a slight increase in the area cultivated, which was greatly reduced in 1931, but much more to the unit yield, which last year was reduced to 7.9 quintals per hectare owing to particularly unfavourable conditions. It has this year risen to 10.5 quintals per hectare and having thus returned nearer to the normal, is almost equivalent to the average for the ten-year period 1921-30 and between the average of the period 1921-26, which may be considered as normal, and that of the four-year period 1927-30, during which the expansion of the area cultivated was followed by a very appreciable fall in unit-yields and a decrease in production. It follows from these comparisons that even if the results of the 1932-33 season in Annam are distinctly above those of the last five seasons they are still somewhat below the normal, if the 1921-26 average is taken as such; area has somewhat increased, production is about one-tenth or over 200 million pounds less and unit yields about one quintal per hectare smaller.

British Malaya: October was wet in most parts of the Peninsula, precipitation being unusually heavy for the month in Penang, north Perak and Selangor, in which areas flooding occurred.

Lack of sufficient water in much of the coastal area and on the higher land in the interior of Kelantan still delayed transplanting; seedlings in nurseries badly damaged by drought were recovering but would take considerable time to become established after transplanting so that much of the crop will be late. Planting was practically completed in Kedah, central Perak and Penang and was progressing well in north Perak and the coast of Malacca. In Krian the crop was well-established in the southeast and promised a good harvest; in the northwest however, water shortage had resulted in irregular planting and was likely to lead to a late harvest in wet weather. In Kuala Selangor, especially in the new areas, clearing continued and nurseries were sown. The crop in Pahang was promising.

The Department of Drainage and Irrigation carried out during the year an examination of several potential areas of padi land with a view to the possibilities of providing water and drainage. The Department of Agriculture is also examining the soils of these areas.

Siam: According to telegraphic reports from the provinces the area planted in 345 districts up to the end of September amounted to 6,355,000 acres, against 6,357,000 acres in the same districts at the same time of last year. The cultivable land was 8,679,000 acres. The area planted was, therefore, about 73 % of the cultivable land. The area reported damaged so far from 35 provinces amounted only to 67,000 acres against 86,000 acres in 47 provinces at the same time of last year. But, as a matter of course, the actual damage cannot be estimated until the crop comes to harvest. The damage was caused mostly by floods, and, in some provinces, by insufficient water and crabs. The conditions of the crop at the end of September was reported to

be as follows: 19 provinces doing well (of which 14 in the Seven Inner Circles); 36 provinces doing fairly well (12 in the Seven Inner Circles); 2, in the Seven Inner Circles, not doing well.

Syria and Lebanon: The rice area is estimated at 670 acres against 480 in 1931 and the average of 430 for the period 1926-30; percentages: 140 and 155. The figure of production is 7,200 centals (16,000 bushels) of rough rice compared with 6,400 (14,000) in 1931 and 7,000 (16,000) the average for the period 1926-1930; percentages: 112 and 102.

Egypt: Weather favoured maturation and harvesting of the *nili* crop; harvesting of early-sown areas was over and that of the main crop continued. Unit yields were expected to be normal. Harvesting of the *sefi* crop ended; unit-yields were slightly above the average. Crop condition was 104 on 1 December as on 1 November against 94 on 1 December 1931. Rains caused some damage to the crop on the threshing floors but the subsequent drier weather assisted early drying.

POTATOES

Austria: Due to defective ripening it has been necessary to clean the tubers several times. As to their keeping quality, opinions differ considerably.

Belgium: Lifting has ended; yields are very high but conservation leaves much to be desired in certain areas due to rotting.

Irish Free State: Crops were harvested under exceptionally favourable conditions, the weather being fine and mild. No serious damage was reported from disease or insect pests and yields were satisfactory.

Great Britain and Northern Ireland: On the whole the weather in November was favourable, though work was hindered by the rains in the latter part of the month. Conditions were generally favourable for lifting and clamping of the tubers though part of the crop was harvested in a very wet conditions. In England and Wales the size and quality of the tubers is somewhat variable but fair on the whole and little disease had so far been reported.

Italy: In November the early potatoes were planted.

Cyprus: Potatoes of the new crop were on the market in November; a good harvest was secured.

Palestine: The irrigated potato crop is well forward and increased activity is noted. The late autumn sown crop is above ground; the winter crop is still being sown.

Algeria: Sprouting of late sowings was satisfactory. Lifting of early varieties reached its maximum toward 20 November.

Potatoes

COUNTRIES	AREA					PRODUCTION											
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932					
				1931	Average							1931	Average				
														= 100	= 100	= 100	= 100
1,000 acres					1,000 centals			1,000 bushels of 60 lbs									
Germany	7,115	6,979	6,943	101.9	102.5	999,284	967,091	864,334	1,665,440	1,611,787	1,440,527	103.3	115.6				
Austria	511	479	459	106.7	111.3	50,235	59,895	52,508	83,723	99,823	87,512	83.9	95.7				
Belgium	435	425	410	102.4	106.3	77,704	78,857	74,142	129,503	131,425	123,567	98.5	104.8				
Bulgaria	37	32	28	115.4	134.3	2,134	1,720	946	3,556	2,866	1,576	124.1	225.7				
* Denmark	172	157	169	110.1	101.8	...	19,342	20,276	...	32,236	33,793	...	...		
Spain	1,042	1,024	832	101.7	125.2	113,118	103,110	85,576	188,526	171,846	142,623	109.7	132.2				
Estonia	166	168	166	98.8	99.9	15,148	18,839	16,688	25,245	31,398	27,813	80.4	90.8				
* Irish F. State	348	346	363	100.6	96.0	...	43,279	53,605	...	72,132	89,341	...	...		
Finland	192	174	173	110.5	111.1	22,168	15,997	17,419	36,945	26,661	29,030	138.6	127.3				
* France	3,442	3,533	3,589	97.4	95.9	...	359,350	308,759	...	598,904	514,588	...	...		
Engl. a. W.	504	447	489	112.7	103.0	74,099	53,917	70,162	123,499	89,861	116,934	137.4	105.6				
Scotland	149	128	140	116.0	105.9	25,581	15,680	21,258	42,635	26,133	35,429	163.1	120.3				
* N. Ireland	142	134	150	105.6	94.5	...	15,635	23,567	...	26,058	39,277	...	...		
Greece	40	34	27	115.2	148.3	2,205	1,383	908	3,674	2,306	1,513	159.3	242.8				
Hungary	297	701	658	104.1	110.9	37,153	31,912	41,269	61,921	53,185	68,781	116.4	90.0				
Italy 1)	1,022	1,019	870	100.3	117.5	62,251	43,311	42,804	103,750	72,184	71,339	143.7	145.4				
Latvia	253	247	207	102.4	122.0	26,569	25,729	18,645	44,280	42,880	31,075	103.3	142.5				
Lithuania	427	409	347	104.4	123.0	40,281	43,254	33,644	67,134	72,089	56,072	93.1	119.7				
Luxemburg	40	41	40	96.0	99.0	5,115	4,700	3,652	8,524	7,832	6,086	108.8	140.1				
Malta	7	7	7	108.1	100.3	564	670	636	941	1,117	1,060	84.2	88.7				
Norway	123	116	120	105.9	103.0	22,818	17,071	18,150	38,029	28,451	30,249	133.7	125.7				
Netherlands	434	406	428	107.1	101.5	81,130	60,322	72,753	135,215	100,535	121,253	134.5	111.5				
Poland	6,709	6,716	6,250	99.9	107.3	593,707	683,179	610,520	989,492	1,138,609	1,017,513	86.9	97.2				
* Rumania 2)	471	474	484	99.4	97.3	...	40,789	43,463	...	67,981	72,437	...	...		
Sweden	337	327	354	103.1	95.2	43,872	33,020	36,508	73,119	55,033	60,846	132.9	120.2				
Switzerland	115	113	119	102.0	97.0	14,813	16,898	14,971	24,688	28,164	24,952	87.7	98.9				
Czechoslov.	1,811	1,778	1,772	101.9	102.2	185,236	214,429	194,761	308,720	357,375	324,594	86.4	95.1				
* U.S.S.R.	13,732	15,104	13,671	—	—	...	...	990,152	...	...	1,650,221	...	...		
Canada	536	584	562	91.7	95.3	39,249	52,305	46,352	65,415	87,175	77,252	75.0	84.7				
United States	3,368	3,375	3,097	99.8	108.8	213,953	225,186	213,920	356,589	375,310	356,526	95.0	100.0				
Java and M.	57	44	50	129.9	114.5	2,425	1,716	2,053	4,042	2,936	3,421	137.7	118.2				
Syria a. Leb.	18	20	16	87.8	115.6	801	971	1,089	1,335	1,619	1,815	82.4	73.5				
Algeria { e)	24	29	30	84.8	80.1	958	723	874	1,597	1,205	1,457	132.5	109.6				
{ m)	28	24	25	117.1	112.2	1,025	949	918	709	1,582	1,530	108.0	111.6				
TOTALS	26,229	25,846	24,619	101.5	106.6	2,753,596	2,772,879	2,557,460	4,589,246	4,621,387	4,262,345	99.3	107.7				

* Countries not included in the totals. — e) winter, so-called early, potatoes. — m) Main season crop. — r) The figures for 1932 and 1931 have been calculated taking into account the results of the new agricultural survey. — 2) Unmixed crops. — Area sown as on 20 June 1932.

SUGAR

The first forecasts of probable cane-sugar production given in the following table have been communicated to the Institute by the respective Governments or by the sugar manufacturers' associations. For the countries for which such data are lacking, the figures have been taken from consular reports or, in the absence of these, from as reliable private sources as possible. For Peru and Java the data of production are those fixed by international agreements and for Cuba those fixed by decree by President Machado on 2 November last.

The table does not include all of the countries producing cane-sugar but those missing, for which even approximate estimates are not possessed, contribute only 5 % of the world production of cane-sugar.

Production of Cane Sugar.

COUNTRIES	1932-33 (1)	1931-32	Average 1926-27 to 1930-31	1932-33 (1)	1931-32	Average 1926-27 to 1930-31	Percentages for 1932-33	
							1931-32 = 100	Average = 100
	Thousand cents			Short tons			%	
AMERICA.								
Argentina	7,452	7,623	8,758	373,000	381,120	437,919	98	85
Brazil	21,385	21,826	19,586	1,070,000	1,090,000	979,281	98	109
Cuba	44,093	58,270	96,318	2,000,000	2,913,441	4,815,835	76	46
Ecuador	441	441	442	20,000	20,000	22,084	100	100
United-States (L.)	4,019	3,139	2,536	200,900	157,000	126,798	128	158
Guadeloupe	551	507	519	28,000	25,000	25,949	109	106
Jamaica	1,213	1,345	1,333	61,000	67,000	66,646	90	91
Mexico	4,718	5,161	4,433	236,000	258,000	221,655	91	106
Peru	8,819	8,868	8,690	400,000	443,400	434,506	99	101
Puerto-Rico	19,621	19,849	14,439	980,000	992,423	721,935	99	136
Dominican Republic	9,414	9,579	7,749	471,000	478,931	387,455	98	121
Total America	121,726	136,608	164,803	5,839,900	6,826,315	8,240,063	89	74
ASIA.								
Formosa	18,541	21,805	14,940	927,000	1,090,249	746,981	85	124
India	92,991	86,913	67,769	4,650,000	4,345,600	3,388,414	107	137
Japan	1,764	2,072	1,932	88,000	103,586	96,620	85	91
Java	29,763	57,320	59,818	1,490,000	2,900,000	2,990,857	52	50
Philippine Is.	23,590	20,944	17,906	1,180,000	1,050,000	895,282	113	132
Total Asia	166,649	189,054	162,365	8,335,000	9,489,435	8,118,154	88	103
AFRICA.								
Egypt	2,800	3,250	2,208	140,000	162,474	110,418	80	127
Mauritius	5,181	3,616	4,952	259,000	180,806	247,577	143	105
Reunion	1,102	946	1,071	55,000	47,312	53,552	116	103
Union of South Africa	7,000	6,519	5,910	350,000	325,900	295,498	107	118
Total Africa	16,083	14,331	14,141	804,000	716,492	707,045	112	114
OCEANIA.								
Australia	12,119	13,148	11,365	605,900	657,400	568,236	92	107
Hawaii	19,540	19,961	18,113	977,000	998,000	905,655	98	108
Fiji Is.	2,205	1,786	1,967	100,000	89,000	98,325	123	112
Total Oceania	33,864	34,895	31,445	1,682,900	1,744,400	1,572,216	97	108
GENERAL TOTALS	338,322	374,888	372,754	16,661,800	18,776,642	18,637,478	90	91

1) Approximate data.

On the basis of these first estimates, total world production for the season 1932-33 is forecast to be 10 % smaller than that of the preceding season, as has already been indicated in the Institute's November Crop Report. Owing to the persistence of the crisis in the sugar industry, a further decrease following that noted in the season 1931-32 compared with 1930-31, was inevitable; it

should be observed, however, that the largest proportion of this decrease, in both absolute and relative figures, is due to decreased production in Cuba and Java, which are the largest sugar-exporting countries. The former has reduced its production estimate to three-fourths and the latter to about one-half. Among the other large producing countries, fairly large decreases are recorded by Mexico, Formosa and Australia, but in a large number of other countries of greater importance increases are reported or reductions, if any, are not considerable. For the Dominican Republic, Puerto Rico and Brazil the decrease, according to the latest news, is smaller than was expected last month.

Production of Beet Sugar (raw).

COUNTRIES	PRODUCTION 1 SEPT. - 30 NOV.		TOTAL PRODUCTION DURING THE SEASON					
	1932-33	1931-32	1932-33 1)	1931-32	Average 1926-27 to 1930-31	% 1932-33		
						1931-32 = 100	Average = 100	
thousand centals	thousand centals							
Germany	2) 8,511	2) 12,834	23,141	35,160	42,889	66	54	
Austria	2,365	2,282	3,858	3,585	2,506	108	154	
Belgium	2) 1,351	2) 1,505	5,090	4,422	5,733	115	89	
Bulgaria	3) 572	3) 480	572	563	843	102	68	
Denmark	—	—	4,079	2,690	3,243	152	126	
Spain	—	—	4,805	7,954	4,988	60	96	
Irish Free State	199	26	560	125	442	447	127	
Finland	86	83	146	93	76	157	191	
France	—	—	19,842	18,850	20,299	105	98	
Great Britain	4,716	4,230	7,275	5,631	5,718	129	127	
Hungary	—	—	2,315	2,761	4,685	84	49	
Italy	6,965	8,348	6,965	8,348	8,218	83	85	
Latvia	—	—	573	265	4) 83	217	693	
Netherlands	2) 1,454	2) 755	4,960	3,687	6,162	134	80	
Poland	2) 2,842	2) 3,486	9,171	10,880	15,911	84	58	
Rumania	—	—	1,455	1,138	3,013	128	48	
Sweden	—	—	4,877	3,166	2,728	154	179	
Switzerland	—	—	139	134	148	103	93	
Czechoslovakia	13,469	17,023	13,714	17,921	24,384	76	56	
Turkey in Europe	408	353	408	353	93	116	439	
Yugoslavia	1,658	1,633	1,659	1,903	2,272	87	73	
Total Europe a)	—	—	115,604	129,629	154,434	89	75	
U. S. S. R.	—	—	28,219	33,625	26,723	84	106	
Total Europe b)	—	—	143,823	163,254	181,157	88	79	
Canada	—	—	1,050	1,071	818	98	128	
United States	—	—	28,129	24,860	22,697	113	124	
Total North America	—	—	29,179	25,931	23,515	113	124	
Japan	—	—	582	592	517	98	113	
Turkey in Asia	176	143	176	143	46	123	383	
Total Asia	—	—	758	735	563	103	135	
*Australia	—	—	...	118	53	...	...
GENERAL TOTALS { a)	—	—	145,541	156,295	178,512	93	82	
{ b)	—	—	173,760	189,920	205,235	91	85	

*) Countries not included in the totals — a) Not including the U. S. S. R. — b) Including the U. S. S. R. — 1) Approximate data. — 2) To the end of October. — 3) To 15 November. — 4) Average 1927-28 to 1930-31.

India, in carrying out the plan of developing the sugar industry initiated two years ago, is extending the cultivation of sugar-cane in order to give more work to its factories, which have been increased both in productive capacity and in number. Two years ago fifty factories were in operation whereas during the present season there are sixty in operation, protected by customs duties now fixed at 7.4 rupees per hundredweight. At present, India, favoured also by an abundant supply of labour, has become the most important cane-sugar producing country in the world and although this development is of little importance as regards the export trade, the fact that the country has a large sugar consumption will have a considerable repercussion on the foreign import trade, particularly on that of Java, which contributes nine-tenths of the total sugar imports into India.

If the total world production of cane-sugar and beet-sugar is considered, estimates for the present season 1932-33 indicate a decrease of 9% compared with 1931-32 and of 12 % compared with the average of the preceding five seasons.

In the following table are given the data of sugar stocks as on 1 September 1932 compared with the corresponding figures for the preceding five seasons, including the stocks of a large number of European countries, Cuba, the United States and Java as well as the quantities afloat. This list of countries, although incomplete, is sufficient to give a fairly exact idea of the general movement of stocks.

World sugar stocks during the series of years considered increased gradually together with production until 1930-31; they continued to increase in 1931-32; despite a decline in production

If only Europe is taken into consideration and the U. S. S. R. excluded, the same phenomenon is noted, but in a more accentuated form, until 1930-31; in 1931-32 there was, it is true, a reduction of stocks but this was small relatively to the decline in production.

If, on the basis of world production (excluding the U. S. S. R.) and of the stocks indicated in the table, a calculation is made of apparent sugar consumption, it is found that the latter increased up to the season 1927-28, remained practically stationary during the three seasons 1928-29, 1929-30 and 1930-31, only to fall again during 1931-32.

In fact, although production in the season 1931-32 was smaller than in 1930-31 stocks at the end of 1931-32 continued to increase.

If, during the current season, sugar consumption remains the same as in the season just closed, or, still worse, if it further diminishes, world sugar stocks at the end of the season 1932-33, though remaining below those of the preceding season, will yet be large enough to depress the sugar market.

This brief review illustrates that the crisis which has for some time persisted in the sugar industry is due to overproduction as well as to a reduction in individual consumption.

The comments made above for the world apply also, on the whole, to Europe with the difference, however, that the European stocks as on 1 September 1932 were smaller than those as on 1 September 1931 and that, as a consequence, the European situation as regards sugar production and trade, is a little more healthy than that of the remainder of the world.

E. R.

Visible stocks of sugar on 1 September.

COUNTRIES	1932	1931	1930	1929	1928	1927
(Thousand centals)						
Germany	16,149	16,378	6,850	5,165	5,108	5,584
Austria	154	672	278	168	55	24
Belgium	1,455	1,874	1,351	1,517	1,023	589
Spain	4,312	1,894	1,127	1,563	2,070	2,734
France	4,815	6,784	4,689	4,482	2,388	3,159
Great Britain	5,201	4,828	5,415	3,666	4,434	5,919
Hungary	600	1,043	320	284	205	165
Italy	5,741	5,816	5,115	3,966	2,758	1,724
Netherlands	2,937	3,530	2,302	2,249	895	79
Poland	3,893	5,822	3,510	1,790	891	661
Sweden	2,088	2,568	1,947	2,116	1,184	886
Czechoslovakia	4,676	6,905	2,529	1,991	2,388	1,076
<i>Total Europe . . .</i>	<i>52,021</i>	<i>58,114</i>	<i>35,433</i>	<i>28,957</i>	<i>23,399</i>	<i>22,600</i>
Cuba	49,157	57,281	61,134	30,710	31,151	31,967
United States (ports)	11,815	12,101	10,362	19,989	11,180	7,022
Java	64,060	42,759	32,880	29,566	23,188	19,914
Afloat	7,165	5,776	4,850	4,652	5,027	5,600
<i>TOTAL . . .</i>	<i>184,218</i>	<i>176,031</i>	<i>144,659</i>	<i>113,874</i>	<i>93,945</i>	<i>87,103</i>
(Thousand short tons)						
Germany	807	819	342	258	255	279
Austria	8	34	14	8	3	1
Belgium	73	94	68	76	51	29
Spain	216	95	56	78	104	137
France	241	339	234	224	119	158
Great Britain	260	241	271	183	222	296
Hungary	30	52	16	14	10	8
Italy	287	291	256	198	138	86
Netherlands	147	176	115	112	45	4
Poland	195	291	175	90	45	33
Sweden	104	128	97	106	59	44
Czechoslovakia	234	345	126	100	119	54
<i>Total Europe . . .</i>	<i>2,602</i>	<i>2,905</i>	<i>1,770</i>	<i>1,447</i>	<i>1,170</i>	<i>1,129</i>
Cuba	2,458	2,864	3,057	1,536	1,558	1,598
United States (ports)	591	605	518	999	559	351
Java	3,203	2,138	1,644	1,478	1,159	996
Afloat	358	289	243	233	251	280
<i>TOTAL . . .</i>	<i>9,212</i>	<i>8,801</i>	<i>7,232</i>	<i>5,693</i>	<i>4,697</i>	<i>4,354</i>

Sugar production.

(U. S. S. R. not included).

	1931-32	1930-31	1929-30	1928-29	1927-28	1926-27
(Thousand centals)						
Europe	130,073	185,696	170,277	153,418	142,371	130,274
Total	540,134	597,631	592,803	584,073	551,731	509,622
(Thousand short tons)						
Europe	6,504	9,285	8,514	7,671	7,118	6,514
Total	27,006	29,881	29,640	29,203	27,586	25,481

Sugar beet.

COUNTRIES	AREA					PRODUCTION							
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average to 1930	1932	1931	Average to 1930	% 1932	
				1931	Average							1931	Average
			= 100	= 100							= 100	= 100	
1,000 acres	1,000 centals					1,000 short tons							
Germany .	669	941	1,102	71.1	60.7	164,625	243,370	257,369	8,231	12,168	12,868	67.6	64.0
Austria . .	106	105	69	100.0	152.1	21,226	21,554	15,844	1,061	1,078	792	98.5	134.0
Belgium . .	132	128	155	102.9	85.4	33,002	32,310	39,372	1,650	1,615	1,969	102.1	83.8
Bulgaria .	30	30	46	100.0	63.9	5,291	4,189	6,001	265	209	300	126.3	88.2
*Denmark. .	93	75	91	125.3	103.0	...	17,262	23,537	...	863	1,177	...	...
Spain . . .	201	277	166	72.7	121.7	39,548	62,969	38,361	1,977	3,148	1,918	62.8	103.1
Finland . .	6	5	5	117.3	110.9	1,036	794	834	52	40	42	130.6	124.2
*France . .	617	621	633	99.4	97.5	...	136,592	145,298	...	6,829	7,265	...	...
Engl. a. W.	255	233	220	109.3	115.7	44,800	37,094	40,045	2,240	1,855	2,002	120.8	111.9
Scotland . .	1	1	4	69.7	18.0	114	114	482	6	6	24	100.0	23.7
Hungary . .	113	134	172	84.0	65.5	19,366	21,301	32,654	968	1,065	1,633	90.9	59.3
Italy 1) . .	207	283	253	73.3	82.0	54,991	54,524	57,967	2,750	2,726	2,898	100.9	94.9
Netherlands	99	93	153	106.9	64.7	34,613	22,690	45,961	1,731	1,134	2,298	152.5	75.3
Poland . . .	286	367	517	77.9	55.4	52,250	60,875	96,718	2,612	3,044	4,836	85.8	54.0
*Rumania . .	45	50	158	91.6	28.8	...	6,828	23,529	...	341	1,176	...	...
Sweden . .	99	87	75	113.4	131.0	29,366	19,317	18,577	1,468	966	929	152.0	158.1
Switzerland.	3	3	4	109.4	96.8	1,036	838	1,056	52	42	53	123.7	98.1
Czechoslov.	361	461	637	78.2	56.6	81,098	115,541	146,730	4,055	5,777	7,336	70.2	55.3
*U.S.S.R. . .	3,123	3,401	1,868	91.8	167.2	...	...	208,073	...	...	10,404	...	...
Canada . .	45	50	48	90.0	94.4	9,000	9,081	8,736	450	454	437	99.1	103.0
United St. .	768	713	701	107.7	109.6	179,820	158,060	154,365	8,991	7,903	7,718	113.8	116.5
TOTALS . .	3,381	3,911	4,327	86.5	78.1	771,182	864,621	961,072	38,559	43,230	48,053	89.2	80.2

* Countries not included in the totals. — 1) The figures for 1932 and 1931 have been calculated taking into account the results of the new agricultural survey.

* * *

Austria : The sugar-beet bulbs have continued to fill out up to the time of lifting; the latter operation was completed towards the middle of November. Transport to the factories has been effected rapidly.

At the beginning of December the crop condition of the beet was 2.8 against 3.0 on November 1 this year and 2.6 on December 1, 1931.

Belgium : Lifting of sugar beet has been finished; yields are very high. Sugar content has improved.

Great Britain and Northern Ireland : The crop on England and Wales is up to average, the roots being of good size and the sugar content fair. In Scotland most of the crop was lifted under fairly satisfactory conditions and the roots sent to the factory in a clean state. Average sugar content throughout the area up to the end of November was 16.7 % against 17.5 % up to the end of November 1931 and 17.3 % for last season as a whole.

Antigua : There were very heavy and prolonged rains in November and some of the ratoons suffered from excessive moisture. The 1934 crop will be curtailed.

Barbados : Up to the end of October prolonged drought and unusually high temperatures had been experienced in some districts. The moisture factor was becoming critical especially on the black soil.

United States : In the week ended on November 23 the harvesting of cane and making of sugar continued satisfactorily in Louisiana, with little damage from the frosts.

The latest estimate of the sugar cane area is 217,000 acres against 184,000 last year and 124,000, the average for 1926-27; percentages: 117.9 and 174.8. Production amounts to 68,020,000 centals (3,401,000 short tons) of cane compared with 54,340,000 (2,717,000) in 1931 and the average of 38,820,000 (1,941,000); percentages 125.2 and 175.2.

Mexico : The crop condition of sugar cane is generally good. In some regions the October floods have seriously damaged the crop.

Puerto Rico : According to a report issued recently by the United States Department of Commerce, the latest reports from the south coast of Puerto Rico, which was comparatively unaffected by the hurricane of September, indicate that the coming sugar crop will be a large one. Also, owing to very favourable weather since the hurricane, the sugar cane in the damaged areas has shown remarkable recovery. It was estimated that before Christmas most of the mills on the south coast would be grinding whereas delay in grinding was expected on the north and east coast owing either to storm damage to mills or local peculiarities of soil and climate.

Réunion : The sugar season was prematurely checked at mid-October in the Leeward Is., and the quantity of cane ground was reduced owing to drought and mosaic disease. Total production is consequently predicted to be below the normal, although perhaps larger than last year.

Trinidad : The continuance of drought from September was causing some anxiety in November in the more elevated districts.

Formosa : The weather favoured the growing conditions of the cane to be cut from this autumn to next spring and of the cane under planting.

India : Light to moderate rain fell at the beginning of November in the United Provinces but subsequently, apart from scattered light showers, the weather up to November 26 was dry; on that date the condition of standing crops was good and prospects were favourable. November weather was dry in the Punjab; condition remained unchanged from the previous month. Rainfall varied from light to heavy in the first half of November in Bihar and Orissa and subsequently decreased. On November 28 condition was good.

Indo-China : At the beginning of October, a little before the harvest, growth was good in Tonkin and Annam, thanks to the rains in September, which considerably ameliorated crop condition compromised by the drought in August.

Syria and Lebanon : The area sown to sugar cane is 940 acres against 780 last year and 540, the average for the period 1926-30; percentages: 121 and 173. Production is estimated at 68,000 centals (3,400 short tons) compared with 79,000 (4,000) last year and 71,000 (3,500), the average for 1926-30; percentages: 86 and 96.

Egypt: Weather in November favoured ripening. Cutting of certain areas for local use continued. Cutting of the crop for the factories began in the latter half of December. Crop condition on 1 December was 104 against 103 on 1 November this year and 103 on 1 December 1931.

Union of South Africa: Weather in the Natal sugar belt was generally favourable in October, rainfall ranging from 3 to 7 inches. Average crop condition was 12 % below normal.

VINES

The information that has become available since the publication of the last number of the Crop Report involves a rather considerable modification in the estimate of wine production in the northern hemisphere, since the changes are all in the same sense, as indicating an increase. In Europe the first estimate for Greece is a high one and Italy has increased the estimate of grape production, which probably involves an increase of the estimate of wine production; the fall in the French output seems on the other hand, smaller than was estimated last month. Algeria has added 40 million Imperial gallons (50 million American gallons) to the previous estimate (1).

From these rectifications it follows that the total production of the four leading viticultural countries of Western Europe – France, Italy, Spain and Portugal – will not be very much below that of last year, the fall in French production being compensated for by the increase in the Italian crop. In the majority of other European countries, Greece excepted, the vintage seems to have given results below those of last year so that the total European production would seem to be distinctly less than in 1931; it is nevertheless possible that it approaches fairly closely to that of 1927 and in any case the latest rectifications mentioned above place it clearly above the crops of 1921, 1926 and even 1930, years of very poor production.

The production of North Africa further increases the crop in the northern hemisphere, which would seem to be established, as far as can be judged on the basis of present indications, at about 3,400 (4,100) million gallons, or perhaps rather below this figure. The crop, somewhat less than that of last year, would thus be quite near the mean of the decennium 1921-30 and between the quinquennial means of 1926-30 and 1921-25, being above the former and below the latter.

This general rectification, involving a production above that previously estimated, strengthens the conclusion reached last month, namely, that total supplies existing in the northern hemisphere are quite sufficient to satisfy both internal and external consumption. It must, however, be noted that, according to the statistics of the American Chamber of Commerce of Paris, the quantity of wine already shipped to United States destinations and awaiting in the

(1) The French crop estimate, published in the following table, was communicated while this article was in the press.

customs warehouses the raising of the prohibition laws, is about 18 (21) million gallons, representing, accordingly, two times the total of annual prewar imports into this country.

Vines.

COUNTRIES	AREA					PRODUCTION											
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	1932	1931	Average 1926 to 1930	% 1932					
				1931	Average							1931	Average				
														= 100	= 100	= 100	= 100
1,000 acres					1,000 Imperial gallons				1,000 Amer. gallons								
*Germany	205	204	201	100.3	101.6	...	62,463	40,928	...	75,012	49,151	...	...		
Austria	70	73	80	95.4	87.6	21,294	30,473	14,244	25,572	36,595	17,105	69.9	149.5				
Bulgaria	222	217	199	102.3	111.7	57,722	61,769	35,007	69,318	74,179	42,041	93.4	164.9				
Spain	3,526	3,526	3,460	100.0	101.9	406,453	419,583	481,258	488,114	503,881	577,948	96.9	84.5				
France	...	3,559	3,441	...	...	1,047,831	1,263,933	1,114,578	1,258,351	1,517,870	1,338,508	82.9	94.0		
Greece	397	356	297	111.4	133.3	74,792	42,793	56,283	89,818	51,391	67,591	174.8	132.9				
Italy 3). (u)	2,542	2,431	2,051	102.0	124.0	...	...	...	...	...	...	...	...
Luxemburg	7,323	7,332	8,572	99.9	85.4	945,895	731,146	866,401	1,135,934	878,041	1,040,470	129.4	109.2				
Czechoslov.	47	47	42	101.9	111.9	895	1,880	1,139	1,075	2,258	1,367	47.6	78.6				
						10,644	10,027	6,167	12,783	12,041	7,406	106.2	172.6				
*Syria a. Leb	130	130	108	100.0	120.9	—	—	—	—	—	—	—	—				
Algeria	773	771	564	100.2	137.1	402,883	348,808	248,229	483,826	418,887	298,101	115.5	162.3				
Tunis	99	87	72	113.5	137.3	35,350	15,545	19,255	42,452	18,668	23,123	227.4	183.6				
TOTALS.	—	—	—	—	—	2,957,342	2,877,831	2,790,935	3,551,500	3,456,005	3,351,661	102.8	106.0				

*) Countries not included in the totals. — u) Unmixed crop. — m) Mixed crop. — 1) Area bearing. — 2) Must. — 3) The figures for 1932 and 1931 have been calculated taking into account the results of the new agricultural survey.

As regards the quality of the wines of the last crop recent information confirms the general note given last month. The wines of Spain, Southern France and Central and Northern Italy are of poor glycometric content and their quality is often mediocre. The production of Southern Italy and of the Danubian countries as well as of Algeria, appears to be good and of normal, sometimes high, grade, while that of the French regions of fine wines, though irregular, is often good.

The wine market has remained quiet on the whole despite an average business activity in Italy and marked activity in Algeria; quietness also rules on Spanish markets. Prices are firm almost everywhere.

P. DE V.

* * *

Austria: New wines are mostly of very good quality..

At the beginning of December condition of the vines was 1.8 against 2.2 on 1 November this year and 2.3 on 1 December 1931.

Spain: Although it is still very difficult to estimate, after the vintage, the exact quantity of wine produced, the quality apparently varies greatly and is often mediocre, at least in the northern provinces; elsewhere quality is better and, in fairly numerous cases, good, but the sugar content is nearly everywhere below the normal.

There is a fairly regular flow of exports despite the difficulties of entry into France but calm is general and accentuated on the home market. Quotations are well main-

tained. The application of the new viticultural law is apparently rather uncertain and variable according to region.

Production of grapes in 1932 was 68,737,000 centals, an increase of 1.4 % on that of last year (67,804,000) and a decrease of 14.7 % on the 1926-30 mean (80,558,000).

France : The first crop declaration results indicate, for the four large producing departments of the South, a production very nearly equal to that of 1930. The information received from the different viticultural regions on the whole indicates yields a little larger than those anticipated, so that total production should apparently be over 1,000 million Imperial gallons (1,200 million American gallons) without, however, greatly exceeding this figure or, particularly, reaching 1,100 million Imperial gallons (1,300 million American gallons) (1).

The quantity of stocks in the hands of producers is, in these four departments, 5 % larger than last year but much below the quantities held at the end of the seasons 1928-29 and 1929-30. The total quantity sold during the season in these four departments and its distribution between taxable consumption, the market and untaxable consumption by proprietors has been nearly normal in relation to total supplies. The result is due, very probably, to the larger quantity of wines distilled as a consequence of the viticultural laws of 1929 and 1931.

In the remainder of France where crop declarations are not yet known (1), the quantity sold by producers both for direct consumption and for distillation has not, on the contrary, exceeded the quantity sold during last season when supplies were very small ; the proportion of supplies sold on the market is therefore much below the normal and there is every reason to believe that the stocks in the hands of producers were very heavy and probably larger than those residual from the seasons 1928-29 and 1929-30 during which the quantities offered for sale were very large. The conclusion arrived at is that particularly the regions other than the South, producing superior wines, have experienced the greatest difficulty in marketing their product and have suffered most from the viticultural crisis.

Taking into account the probable stocks in the hands of producers outside the four southern departments, the total French supplies at the beginning of the season apparently reach, or very slightly exceed 1,200 million Imperial gallons (1,450 million American gallons), giving, for France and Algeria, including the wines of Tunis already entered free of duty, a total supply of nearly 1,650 million Imperial gallons (2,000 million American gallons) excluding the trade stocks which show variations of little importance. Even if the quantity of wine consumed as such or distilled is maintained at the same level as this year, namely, at about 1,500 million Imperial gallons (1,850 million American gallons), the total current home supply seems, on the basis of the still somewhat approximate data given above, to be quite sufficient to meet the needs for consumption.

The quality of the new wines and especially their sugar content are decidedly poor in the large producing regions of the South ; this judgement finds support in relation to the recent decree lowering the legal minimum degree for wines made from the current crop and by the quotations on southern markets which have been classified on the basis of a content two degrees below that of last year ; on the Montpellier market the two types quoted are 6° to 7°.5 and 7°.5 to 8.5° whereas last year three types were specified : 8°, 9° and 10° to 11°. In the other regions, although the sugar

(1) The French crop estimate, which is published in the table, was communicated while this article was in the press.

content is generally low, quality is often better than was anticipated, being good in some vineyards and in some cases even better than last year.

The current season has begun late and quietly. The quotations for new wines are much lower than those for old wines as quoted a month ago but still a little higher than at the beginning of last season. Marketing of the product is apparently taking place fairly slowly and moreover, began about a fortnight in delay.

The generally fine weather in November favoured seasonal work in the vineyards, pruning in the South, cultivation, inter-tilling and manuring. The beginning of December was rainy and work slackened.

Italy : The revised figure for grapes used in wine-making would indicate an increase of 22 to 44 million Imperial gallons (25 to 50 million American gallons) on the estimate of wine production made at the end of September before the completion of the vintage. The regular increase in the amount of grapes consumed directly and in the production of table grapes should also be noted.

Trade has been fairly well maintained with a comparatively large movement of wine from the southern regions and a fairly large export to Switzerland. The demand for normal wines of 10 degrees and especially wines of high alcoholic content for mixing is good while that for low quality wines, which are relatively plentiful in the centre and north is almost negligible; prices for the former are well maintained.

In the following table are given the definitive data for 1932 of the production of grapes for various purposes, compared with those for 1931 and 1930 :

	1932	1931 (thousand pounds)	1930
Total production of grapes	16,413,521	13,416,527	12,952,369
Wine grapes for wine-making	15,544,842	12,675,657	12,342,923
Wine grapes for consumption in the fresh state	561,793	480,393	398,116
Table grapes, fresh	283,859	234,967	182,568
Table grapes fresh, for drying	23,027	25,510	28,762
Grapes, dried	(7,387)	(8,375)	(9,672)

Data for 1931 and 1932 have been calculated on the basis of the new Agricultural Survey.

United States : The latest estimate of production of grapes is 43,240,000 centsals (2,162,000 short tons) compared with 32,437,000 (1,622,000) in 1931 and 48,933,000 (2,447,000) the average for 1926-27 ; percentages: 133.3 and 88.4.

Algeria : Growth of vines was checked after the end of November and soil moisture being good, work was actively carried on ; pruning became general at the beginning of December. The economic position of the growers is good.

Tunis : The weather in November was favourable to the vines, which were being pruned at the beginning of December.

Australia : Output of wine in 1931-32 was 14,131,000 Imperial gallons (16,971,000, American gallons) against 13,078,000 (15,706,000) in 1930-31 and 17,732,000 (21,294,000) on the average of the five years ending 1929-30, an increase of 8.1 % on the first figure and a decrease of 20.3 % on the average.

OLIVES

The table given below contains the first estimates of oil production at present known.

Production of Olive Oil.

		1932-33	1931-32	1926-27 to 1930-31	% 1931-32 = 100	% 1932-33 Average = 100
Spain	ooo centals	7.601	7.741	8.211	98,2	92,6
	ooo Am. gallons	99.886	101.725	107.895		
Greece	ooo centals	2.535	2.286	1.811	110,9	140,0
	ooo Am. gallons	33.316	30.042	23.796		
Algeria	ooo centals	424	411	417	103,1	101,7
	ooo Am. gallons	5.570	5.400	5.480		
Tunis	ooo centals	1.102	1.102	820	100,0	134,4
	ooo Am. gallons	14.485	14.485	10.777		

As was previously forecast, the Spanish production for 1932-33 has not reached 9 million centals (116 million American gallons); although larger than in previous years in the eastern part of the country (Aragon, Levant, Catalonia and eastern Andalusia) it is smaller in the western and central areas (western Andalusia, Castile and Estremadura).

The latest information received for Italy confirms that this year's production will be, on the whole, a little above the average; a good olive crop is counted upon in Tuscany, and an average one in Apulia; in Calabria and in Sicily results should be less good, and in some cases even poor.

* * *

Italy: In some provinces of southern and insular Italy, the olives have been attacked by fly and yields vary. The oil yield is not always abundant, especially where the damage by fly has been largest.

Palestine: Picking and pressing of olives is in progress in the North while in the South picking is over. The crop, as previously reported, is not likely to exceed 20 % of the normal.

Algeria: Gathering of olives became general toward the end of November. It continued slowly, the growers being unwilling to involve themselves in large harvesting expenses under the present conditions of low prices. Accordingly it is not expected that the relatively low-yielding trees will be picked.

Tunis: The weather has continued to favour the olives. The estimate of the crop, which was being harvested at the beginning of December, has again been raised and now reaches the level of last year's production.

COTTON

The fifth estimate of the Government of the United States on cotton production in the current season shows an increase of 780,000 bales, or 6.5 % on the preceding estimate of November and of 1,421,000 bales, or 12.6 % on the first estimate of this season, published in August. The December estimate will remain unchanged until its final revision on 20 May 1933. In comparison with the last ten seasons this year's production is not much smaller than that of 1927 and larger only than that of 1923 and 1922. The latest estimate of the area harvested exceeds the preceding one by 978,000 acres or 2.7 %. As the abandonment of area sown this year is estimated at 1.7 %, the area in cultivation on 1 July 1932 may be calculated at 38,227,000 acres, compared with the preceding estimate of 37,290,000 acres. The average yield per acre for the whole of the United States is now estimated at 162.1 lb. of ginned cotton compared with 156.2 lb. estimated last month, 201.2 lb. last year and 151.4 lb., the ten-year average for the period 1921-1930. The increase in the production forecast is due partly to the improvement of yields in all of the major producing States and partly to the fact that the early estimates of the area sown to cotton were much too low in nearly all of the States.

Cotton.

COUNTRIES	AREA						PRODUCTION OF LINT										
	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33		1932/33	1931/32	Average 1926/27 to 1930/31	1932/33	1931/32	Average 1926/27 to 1930/31	% 1932/33					
				1931/ 1932	Average age							1931/ 1932	Average age				
														1932	age	1932	age
1,000 acres				1,000 centals				1,000 bales of 478 lb.									
Bulgaria . .	20	13	12	151.0	163.2	40	23	16	8	5	3	169.2	245.5				
Spain . . .	20	14	22	138.6	88.7	19	16	21	4	3	4	117.7	90.8				
Italy. . . .	3	4 1)	9	78.3	37.4	5	7 2)	18	1	1 2)	4	67.9	24.6				
*U.S.S.R. . .	5,787	5,346	2,503	108.2	231.2	...	8,812	5,695	...	1,843	1,191	...	...		
U. S. A. . .	37,589	40,693	44,690	92.4	84.1	60,835	81,719	70,904	12,727	17,096	14,834	74.4	85.8				
Mexico . .	156	319	465	48.8	33.5	416	989	1,186	87	207	248	42.0	35.0				
China . . .	3) 5,631	4,803	4,806	117.2	117.1	3) 14,433	8,529	10,183	3) 3,019	1,784	2,130	169.2	141.7				
Korea . . .	393	472	493	83.3	79.8	606	483	683	127	101	143	125.7	88.8				
India . . .	1) 20,779	22,358	23,708	92.9	87.6	2) 16,932	16,372	21,088	2) 3,542	3,425	4,412	103.4	80.3				
Syria & Leb.	24	75	51	32.5	47.9	25	81	47	5	17	10	31.0	54.1				
Algeria . .	6)	5	14	6.8	2.2	1	6	28	7)	1	6	15.4	3.6				
Egypt . .	1,135	1,747	1,861	65.0	61.0	4,158	6,153	7,649	870	1,287	1,600	67.6	54.4				
Eritrea . .	5	7	6	71.4	80.0	7	8	6	2	2	1	89.2	124.1				
*Uganda . .	1,070	866	641	123.6	166.9	...	780	634	...	163	133	...	...		
*A.-E. Sudan	330	367	299	90.0	110.4	...	985	593	...	203	124	...	...		
TOTALS . .	65,755	70,510	76,137	93.3	86.4	97,477	114,386	111,829	20,392	23,929	23,395	85.2	87.2				

* Countries not included in the totals. — 1) Average 1926/27, 1927/28, 1929/30 and 1930/31. — 2) Average 1929/30 and 1930/31. — 3) Preliminary estimate. — 4) Estimate of the third report. — 5) First estimate. — 6) Area under 500 acres. — 7) Production under 500 bales.

The quality of the lint is in general good and picking was carried out carefully. The average weight of running bales seems to be heavier than usual though smaller than that of last year, indicating that the figure of ginnings in running bales will be considerably smaller than the final figure of production expressed in bales of 500 lb. gross weight.

The December estimate has naturally caused confusion on the market, which did not expect such a large figure and one so greatly exceeding all private estimates. Prices naturally fell very low and prospects for the present do not appear favourable. The market was also affected by political and financial factors of an international character having no direct connection with cotton, but the statistical position of the commodity itself remains the dominant factor.

The Egyptian Government has published the second estimate of this year's production, which, contrary to the expectations of the market, is almost the same as the first save for a slight increase of 525 bales of 478 lb. in cottons above 1 $\frac{3}{8}$ inches, of which 400 bales are Sakellaridis. Despite the fall in sterling, prices in Egypt have also undergone a decline; the market has remained under the depressing influence of current international developments. Arrivals at Alexandria and exports remain below those of last year.

The Indian Government has just published its third report on the area under cotton and its first report on production. The area is 7 % below that of last year and 12.4 % below the 1926-30 average. Production is on the other hand 3.4 % larger than last year, but 19.7 % smaller than the average.

Information from China appears to be less optimistic than in the previous month but a crop over 50 % larger than that of last year is still expected.

Information regarding the crop in the U. S. S. R. continues to be lacking.

In Syria and Lebanon the area under cotton is 67.5 % less than last year and 52 % less than the average; production is 69 % and 56 % lower respectively.

The Anglo-Egyptian Sudan has also reduced its cotton area by 10 % with respect to last year and information on crop condition does not indicate a large production.

Uganda, on the other hand, has increased the area by 23.6 % with respect to that of last year.

I. S.

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U. S. S. R. : On 5 December acquisitions amounted to 77.1 % of the quantity planned.

United States : In the last week of November rains and low temperatures retarded the picking of the remaining cotton in the north central portion of the belt; there was still a considerable amount of cotton in the fields in some Mississippi Valley lowlands but elsewhere the harvest was nearly completed.

During the week ended 6 December the weather was favourable for the gathering of the remnants of the cotton crop and only a very small amount remained in the fields.

The quantity of cotton, not including linters, ginned from the 1932-33 crop to the close of business on 13 November was 10,533,000 running bales (counting round

bales as half bales), against 14,208,000 in 1931, 11,963,000 in 1930, 11,890,000 in 1929, 11,321,000 in 1928 and 10,895,000 in 1927. To the close of business on 30 November the quantity was 11,631,000 against 15,018,000 in 1931, 12,837,000 in 1930, 12,853,000 in 1929, 12,560,000 in 1928 and 11,738,000 in 1927.

Cyprus: By the middle of November picking of cotton had been completed.

India: In the Punjab November weather was dry; cotton was damaged by boll-worm in the districts of Lyallpur and Multan. The third estimate of the cotton area in the Punjab is 2,252,000 acres against 2,545,000 in 1931-32 and 2,506,000, the average for the preceding five seasons, percentages: 88.5 and 89.8. The first estimate of production is 2,464,000 centals (515,000 bales) against 2,000,000 (418,000) in 1931-32 and 2,541,000 (532,000), the average; percentages: 123.2 and 97.0. In Madras rainfall during November varied from moderate to heavy and on the 26th condition was reported to be fair. The third estimate of the cotton area in Madras is 1,728,000 acres against 1,778,000 in 1931-32 and 1,865,000, the average for the preceding five seasons; percentages: 97.2 and 92.6. The first estimate of production is 1,445,000 centals (302,000 bales) compared with 1,368,000 (286,000) in 1931-32 and the average of 1,491,000 (312,000); percentages: 105.6 and 96.9.

French Indo-China: In Annam, which furnishes about one third of the total production of Indo-China, the first picking results have been fair; rather serious attacks of parasites have been reported in one area.

Egypt: Cotton ginned up to the end of November, in bales of 478 lb. net weight, was as follows:

Varieties	1932	1931	1930	1929	1928
Sakellaridis	103,400	121,500	163,400	226,200	277,900
Other varieties above:					
1 3/8 inches	57,350				
1 1/4 inches	41,300	561,900	588,800	623,000	679,100
1 1/8 inches	322,550				
<i>Total</i>	524,600	683,400	752,200	849,200	957,000
Scarto (linters)	11,800	17,100	16,500	18,400	25,200

The cotton harvest was completed in the north of the Delta towards the end of November; in the remainder of the country it had already been terminated by the end of October. The yield of Sakellaridis is smaller than that of last year but the quality seems to be better. Yields of the other varieties either equal or exceed those of last year.

Uganda: During October weather conditions were on the whole, favourable and the crop developed normally. Localised damage from insect pests and disease was reported, but, in general, the damage due to these causes was less than normal. The drier conditions which prevailed during October caused some shedding of the earlier buds and bolls, but have been beneficial in retarding the development of any serious outbreaks of blackarm disease. At the middle of November there were indications of at least an average yield per acre.

FLAX

Now that the first official estimate of linseed production in Argentina has been communicated to the Institute by telegram of December 12, about 90 % of the total world production (excluding that of the U. S. S. R.) is known.

The only data missing are those for Poland, France, Rumania, Uruguay and some other less important producing countries. Taking into account however, for these countries, the data of areas sown and information as to the weather which has predominated during the growing period of the flax crop, it may be estimated that the world production of linseed (excluding the U. S. S. R. for which no reliable data are possessed) should, this year amount to 53.55 million centals (94.98 million bushels) compared with 70.8 million (126.4 million) last year and the five year average of 70.1 million (125.2 million).

The smallness of this production is due principally to the low yields obtained in Argentina, which is the principal producing country of the world, to the tendency to reduce the areas sown to this crop in Europe and lastly, to the deficient production of North America.

In Argentina, although the area sown this year was only 14.3 % smaller than that of last year and 3.1 % above the average of the preceding quinquennium, the production forecast is 37.8 % smaller than that of last season and 28.2 % below the average due to damage by locusts in the provinces of Entre Rios and Santa Fé which are the most important producing centres of the country.

In Europe, production was smaller than that of last year owing to the reduction in the area sown to this crop and decidedly below the average.

In North America the season, although less unfavourable than the extremely bad one of last year, has resulted in very poor yields compared with the average. The December revised estimate communicated by the Ministry of Agriculture at Washington indicates for the United States a production of 6.6 million centals (11.8 million bushels) with a decrease of 551,000 (984,000) compared with that of October. Production is about the same as the very poor one of last year but considerably below the average of 11.5 million centals (20.5 million bushels).

In North America, as in the European flax producing countries, for some years past a retrogressive tendency in flax growing has been noted.

In India, on the contrary, the area under the crop remains fairly steady. Production this year is 9 % larger than that of last year and 10.2 % above the average.

For Uruguay, the production estimate is still lacking. The area sown to flax was considerably larger than both that of last year and the five-year average but the weather was not very favourable to the crop which, as in Argentina, has suffered serious damage due to an attack of locusts.

For the U. S. S. R., sufficient data either for the current crop or for that of last year are not yet available; only the data of area sown on 20 June

Flax.

COUNTRIES	†) AREA					†) PRODUCTION						
	1932	1931	Aver. 1926 to 1930	% 1932		1932	1931	Aver. 1926 to 1930	1932	1931	Aver. 1926 to 1930	% 1932
	—	—	—	—	—	—	—	—	—	—	—	—
	1932/33	1931/32	1926/27 to 1930/31	1931/1932	Aver. age	1932/33	1931/32	1926/27 to 1930/31	1932/33	1931/32	1926/27 to 1930/31	1931/1932
	1,000 acres					1,000 centals			1,000 pounds			
	= 100					= 100			= 100			

Fibre.

Germany	11	16	38	68.1	29.6	79	117	—	7,937	11,684	—	67.9	—
Austria §)	8	8 1/2	10	95.9	74.4	106	107 1/2	146	10,582	10,701 1/2	14,592	98.9	72.5
Belgium	21	36	59	57.9	35.5	149	254	542	14,887	25,370	54,180	58.7	27.5
Bulgaria	1	2	1	56.2	160.6	—	2	2	154	176	152	87.6	101.6
Estonia	36	45	83	80.0	43.8	74	131	208	7,443	13,056	20,826	57.0	35.7
Finland 2)	11	10	11	112.5	101.5	...	...	28	...	...	2,845	...	...
France	25	26	79	98.7	32.1	...	138	589	...	13,788	58,875	...	...
N. Ireland	6	7	31	81.9	19.5	...	31	131	...	3,091	13,058	...	...
Hungary	20	47	13	41.8	150.6	...	133	65	...	13,264	6,518	...	...
Italy 3)	10	10	16	95.7	60.7	54	48	56	5,397	4,857	5,616	111.6	96.1
Latvia	78	104	150	75.5	52.3	209	287	440	20,877	28,660	43,955	72.8	47.5
Lithuania 2)	99	139	212	71.5	46.7	271	466	748	27,070	46,628	74,800	58.1	36.2
Netherlands	5	16	37	29.9	13.1	31	99	252	3,086	9,918	25,153	31.1	12.3
Poland	232	252	281	91.9	82.6	...	756	1,191	...	75,611	119,097	...	...
Rumania	71	69	47	104.1	152.8	...	158	52	...	15,756	5,198	...	...
Czechoslov.	16	23	46	71.4	35.4	68	75	206	6,814	7,469	20,608	91.2	33.1
U.S.S.R. 3)	6,202	5,779	3,457	107.3	179.4	...	12,026	7,410	...	1,202,626	740,958	...	...

Linseed.

Thousand bushels
of 56 pounds

Germany	11	16	38	68.1	29.6	50	73	—	89	130	—	68.5	—
Austria	5	5	7	95.8	70.3	20	19	24	36	33	43	109.4	83.9
Belgium	21	36	59	57.9	35.5	93	182	279	166	326	498	51.0	33.4
Bulgaria	1	2	1	56.2	160.6	6	11	2	11	19	3	57.6	321.8
Estonia	36	45	83	80.0	43.8	83	141	223	149	253	398	58.9	37.3
Italy. 3)	18	18	28	97.1	62.9	105	103	175	188	184	312	102.2	60.1
Latvia	78	104	150	75.5	52.3	205	279	411	366	499	735	73.4	49.8
Lithuania 2)	99	139	212	71.5	46.7	315	562	810	563	1,003	1,446	56.1	38.9
*Rumania	71	69	47	104.1	152.8	...	293	156	...	523	279	...	...
Czechoslov.	16	23	46	71.4	35.4	51	56	164	91	100	293	90.8	31.1
*U.S.S.R. . .	5) 7,347	7,574	4,528	—	—	...	...	13,135	...	...	23,456	...	...
Canada	454	627	511	72.3	88.7	1,419	1,436	2,422	2,534	2,565	4,325	98.8	58.6
United St..	2,087	2,416	3,040	86.4	68.7	6,631	6,607	11,453	11,841	11,798	20,452	100.4	57.9
India	3,241	3,008	3,224	107.7	100.5	9,206	8,445	8,355	16,440	15,080	14,920	109.0	110.2
*French Mor.	61	89	50	68.6	122.4	...	522	252	...	932	450	...	...
Argentina.	6) 7,401	6) 8,640	6) 7,178	85.7	103.1	29,763	47,858	41,461	53,147	85,461	74,037	62.2	71.8
*Uruguay	487	443	270	110.0	180.1	...	2,709	1,593	...	4,837	2,845	...	...
TOTALS	13,457	15,063	14,539	89.4	92.6	47,897	65,699	65,779	85,532	117,321	117,462	72.9	72.8

*) Countries not included in the totals. — **) Unofficial estimate. — †) The two dates given refer to the years in which the harvest took place in the northern and southern hemispheres respectively. — §) Production expressed in terms of air-dried stalks. — 1) Average 1927 to 1930. — 2) Flax and hemp. — 3) The figures for 1932 and 1931 have been calculated taking into account the results of the new agricultural survey. — 4) "Dolgunetz" variety. — 5) Total area of "dolgunetz" flax for fibre and flax for seed sown as on 20 June 1932. — 6) Area sown.

1932, which was almost the same as that last year but considerably above the five-year average, are available. According to a private estimate, the production of the U. S. S. R. should this year be the same as last year namely, about

17.6 million centals (31.5 million bushels). The crop has, however, no importance on the world market since it is almost entirely absorbed by internal consumption.

Summarizing, world production of linseed this season is the smallest in the last ten years, being almost the same as the very poor production of 1929-1930, which was estimated at 53.1 million centals (94.9 million bushels).

According to a telegram from the Argentine Government, the amount of linseed available for export on 18 December 1932 was estimated at 27.8 million centals (49.6 million bushels) against about 44 (73) million last year.

Linseed.

YEAR	Production of Argentina		Exports from Argentina		Net imports into Europe and North America	
	million centals	bushels	million centals	bushels	million centals	bushels
1925	25.4	45.3	21.2	37.8	32.4	57.9
1926	42.1	75.2	36.8	65.7	43.0	76.8
1927	45.2	80.7	41.7	74.4	45.6	81.5
1928	46.3	82.7	42.8	76.4	47.2	84.2
1929	43.9	78.3	35.7	63.8	45.6	81.5
1930	28.0	50.0	25.8	46.1	31.7	56.7
1931	43.9	78.3	41.7	74.4	47.0	83.9
1932	47.8	85.4	(1) 35.7	(1) 63.8	(1) 39.7	(1) 70.9
1933	29.8	53.1	...	...	...	...

(1) Up to the end of October.

In 1932, despite the general slackening of trade, the heavy stocks on the Argentine market were almost entirely absorbed owing to the small crops in Europe and North America and more especially to the fall in prices.

Prices of La Plata linseed at London (Hull delivery).

(Gold francs per quintal)

Annual average	1927	38.43
	1928	39.02
	1929	45.29
	1930	37.27
	1931	20.14
Monthly average	January 1932	15.21
	February "	15.61
	March "	15.92
	April "	15.06
	May "	14.42
	June "	14.10
	July "	14.28
	August "	14.86
	September "	16.24
	October "	15.21
	November "	14.62

The poor crop of the present season should have a favourable influence on linseed prices in the coming months. The Governors of the provinces of Entre-Rios, Santa Fé, Córdoba and Buenos-Ayres have requested the Argentine Government to call a conference to consider the flax situation of the country, with the object of organizing the internal market, of authorizing the Banco de la Nación to give special credits to growers and of establishing a minimum price for linseed.

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* * *

Great Britain and Northern Ireland: Up to the end of November only limited quantities of the crop in Northern Ireland had been scutched and the yield from these lots had been variable. Quality of the fibre was, however, fairly good on the whole.

Argentina: The first official estimate of the linseed crop, which has been below both that of last year (by 37.8 %) and the five-year mean (by 28.2 %) is now available. The poor crop is due largely to locust damage in the provinces of Entre Rios and Santa Fé, the leading producing areas.

Uruguay: The preliminary estimate of area sown this year is 10 % greater than the corresponding figure of last year and 80 % greater than the five-year mean. This is attributed in large part to the active propaganda on the part of the Government for extension of linseed cultivation. Weather has not been very favourable to the crop, which in some departments has suffered serious losses from locusts. Crop condition is, however, generally satisfactory.

India: In November rainfall in Bihar and Orissa varied from light to heavy decreasing towards the end of the month. Light to moderate rains fell in the first part of the month in the United Provinces but the latter half was dry. The condition of standing crops in general in these two provinces and also in the Central Province was reported to be good towards the end of November.

HOPS

COUNTRIES	AREA					PRODUCTION				
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932	
				1931	Aver- age				1931	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	
Germany	20	25	35	78.2	56.6	10,929	17,152	27,220	63.7	40.1
Belgium	1	2	3	69.0	42.7	884	1,148	4,588	77.0	19.3
Engl. and Wales . .	17	20	23	84.7	71.0	21,056	18,900	32,278	111.2	65.2
*Hungary	1)	1	1)	78.2	100.0		274	219		
Czechoslovakia . .	24	31	35	79.1	67.8	16,451	27,177	24,911	60.5	66.0
United States . . .	22	21	23	102.8	95.2	24,120	26,410	30,353	91.3	79.5
TOTALS	84	99	119	87.5	74.5	73,440	90,787	119,350	81.1	61.7

* Country not included in the totals. — 1) Area of less than 500 acres.

HEMP

COUNTRIES	AREA					PRODUCTION				
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932	
				1931	Aver- age				1931	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	

Fibre.

Germany 1)	1	1	2	107.3	35.3	—	—	—	—	—
Austria	1	1	1	91.6	95.4	2)	1,631	2)	1,728	2)3) 1,775
Bulgaria	11	9	9	120.2	117.1	3,968	4,189	2,992	94.7	132.6
Hungary 4)	17	16	22	107.9	75.0	...	8,763	2,557	...	...
Italy 5)	134	141	223	94.9	59.8	122,441	118,175	207,682	103.6	59.0
Poland	79	76	76	103.2	104.2	...	31,773	44,585	...	...
Rumania	118	120	100	97.9	117.8	...	60,048	38,397	...	...
Czechoslovakia	19	21	24	93.5	79.9	10,059	9,189	14,270	109.5	70.5
U.S.S.R.	2,063	2,282	2,193	90.4	94.1	...	...	693,660	...	...
Syria and Lebanon	7	6	6	112.4	102.9	3,086	3,530	3,784	87.4	81.6

Hempseed.

Austria	6)	6)	1	81.6	56.6	154	156	229	99.0	67.3
Bulgaria	11	9	9	120.2	117.1	4,189	3,668	2,397	114.2	174.8
Hungary 4)	17	16	22	107.9	75.0	...	5,493	8,925	...	...
Italy 5)	—	—	—	—	—	5,368	3,582	7) 10,875	149.8	49.4
Poland	79	76	76	103.2	104.2	...	47,102	45,597	...	...
Rumania	118	120	100	97.9	117.8	...	50,079	19,979	...	...
Czechoslovakia	19	21	24	93.5	79.9	6,476	6,097	10,907	106.2	59.4
U.S.S.R.	2,063	2,282	2,193	90.4	94.1	...	...	1,006,907	...	...

1) Hemp and other textile plants. — 2) Production expressed in terms of air-dried stalks. — 3) Average 1927-30. — 4) Unmixed crops. — 5) The figures for 1932 and 1931 have been calculated taking into account the results of the new agricultural survey. — 6) Area of less than 500 acres. — 7) Year 1930.

TOBACCO

Cuba: According to a report issued recently by the United States Department of Commerce, conditions remained practically unchanged in the tobacco industry during November. The hurricane caused very little damage to tobacco stocks on the Island and, although the growing tobacco was adversely affected in some localities, it is not thought that the size or the quality of the next crop will suffer materially by reason of the storm.

United States: In the week ended on November 23, conditions favoured tobacco stripping in Kentucky, while the crop was awaiting case weather in Wisconsin. In the last week of the month cold, dry weather was unfavourable for tobacco stripping in some sections.

French Indo-China: Production was fair in Tonkin and fairly good in Cambodia; these two regions furnish about three-fifths of the total production of the Union.

Algeria: Deliveries of tobacco are at an end; results have been satisfactory and the crop, which had undergone a regression, tends to spread. Preparation of ther

beds is fairly well advanced and it is probable that sowings will be early in order to ensure good germination before the cold weather.

Union of South Africa : The weather was generally hot and dry in October and good rains were required for ploughing and planting. Prospects of a tobacco crop are very poor.

Tobacco.

COUNTRIES	AREA					PRODUCTION				
	1932	1931	Average 1926 to 1930	% 1932		1932	1931	Average 1926 to 1930	% 1932	
				1931	Aver- age				1931	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	
*Germany	27	26	22	104.5	121.4	...	1) 51,105	45,013	...	...
Belgium	7	7	7	94.1	89.6	13,518	14,469	15,026	93.4	90.0
Bulgaria	47	77	73	61.3	64.3	31,306	54,784	54,836	57.1	57.1
Spain	12	9	7	138.4	186.5	13,228	12,991	7,931	101.8	166.8
Greece	153	209	229	73.5	66.8	58,753	95,274	140,189	61.7	41.9
*Hungary	57	62	56	91.5	101.3	...	80,404	65,104	...	...
Italy	99	103	97	95.8	101.6	95,593	103,031	98,027	92.8	97.5
*Rumania	25	40	76	63.6	33.3	...	24,926	45,829	...	...
Czechoslovakia . .	25	22	15	110.4	163.6	33,069	30,495	17,729	108.4	186.5
*U.S.S.R.	449	450	222	99.7	202.0	...	...	320,968	...	...
United States . .	1,433	2,016	1,847	71.1	77.6	1,033,330	1,604,226	1,413,742	64.4	73.1
Japan	84	90	90	92.5	92.6	138,230	155,757	143,138	88.7	96.6
Syria and Lebanon .	11	19	8	58.7	143.7	4,255	11,671	5,103	36.5	83.4
Algeria	52	57	61	91.5	85.6	39,683	39,863	49,852	99.6	79.6
TOTALS	1,923	2,609	2,434	73.7	79.0	1,460,965	2,122,561	1,945,573	68.8	75.1

* Countries not included in the totals. — 1) Production for sale.

OTHER PRODUCTS

Cacao.

Brazil : Entries of cacao by rail in the Ilheos and Rio de Contas zones in November were again heavy though below those of the three previous months. The following statistics enable a comparison with last season to be made.

	November 1932	May to November 1932	November 1931	May to November 1931
Ilheos zone (1000 lb.)	11,707	72,799	13,783	53,357
Rio de Contas zone (1000 lb.) . . .	2,183	10,549	767	2,795

Crop prospects are again reported to be good. Weather was favourable. Heavy storms occurred during the first few days of November but there was subsequently little rain. Precipitation at Ilheos during the month was 5 inches against the average of 7.33 inches.

Flowering of the 1933-34 crop was reported to be normal.

St. Lucia, British West Indies : Reports for October indicated that a good crop was expected.

Santo Domingo : Picking of the winter crop is proceeding and production is expected to be larger than that of summer.

Trinidad : The dry conditions which began in September and were still continuing in mid-November were affecting cacao on the sandy soils in the south. In the east, however, some rain had brought relief. A serious recrudescence of witchbroom has caused heavy expense to the planters. Owing to low prices the standard of cultivation on estates cannot be maintained. Picking was proceeding in November and was expected to continue until the end of December.

Gold Coast : Reports received from the districts up to 10 November gave no reason for modifying the provisional estimate for the major crop of 437 million pounds, taken as a figure rather nearer to the comparatively low figure of 1931-32 than to the average of the four years ending 1931-32.

Returns from 27 observation plots on stations and farms maintained by the Department of Agriculture, with comparative figures for last season are given below.

Pods ripe up to 31 October.

	August	Harvested September	October	Not harvested —	Total —
<i>Eastern Province (13 plots).</i>					
1932-33	499	2,684	2,701	2,588	8,472
1931-32	331	1,234	3,593	2,059	7,217
<i>Central Province (10 plots).</i>					
1932-33	90	251	1,117	1,558	3,016
1931-32	227	95	524	1,169	2,015
<i>Ashanti (4 plots).</i>					
1932-33	—	138	64	761	963
1931-32	75	219	379	436	1,109

These figures clearly indicate that in the Eastern and Central Province the crop is considerably earlier than in 1931-32.

In the Oda district the season was expected to finish by the end of December. In the Eastern Province, with the exception of Huhunya (normally a late area, with only 25 % of the pods ripe on 10 November), some 60 % of the crop had matured.

Picking is general all over the cacao areas. Harvesting follows the order of earliness closely; thus, in Ashanti and the Central Province about 55 % of the crop had been harvested and in the Eastern Province 50 % had been harvested. Dunkwa and Sekondi-Dixcove in the Western Province estimate 40 % and 20 % picked respectively.

All stations have confirmed their estimates of 24 October regarding the earliness or otherwise of the main crop. Eleven centres (Bekwai, Efiduase and Kumasi in Ashanti; Nsawam, Juaso, Kibi and Tafo in Eastern Province; Akokoaso, Oda, Salt-pond and Winneba in Central Province) report an early crop; five centres (Aburi and Koforidua in Eastern Province; Asuansi in Central Province; Dunkwa and Sekondi-Dixcove in Western Province) report that the crop is ripening at the normal rate; one centre (Anyinam in Eastern Province) reports the crop to be late. In general it may be said that on 10 November the Ashanti crop was the most advanced with 98 % and 90 % of the pods ripe at Efiduase and Kumasi respectively, Bekwai and Juaso areas being a little later with 75 % ripe. In the Central Province 75 % of the crop was ripe.

Young pods on trees on 31 October.

	Full-grown but green	Over 4 ½ inches	2 ½ inches to 4 ½ inches	Under 2 ½ inches
<i>Eastern Province (13 plots).</i>				
1932-33	3,713	1,848	535	306
1931-32	4,232	2,255	923	329
<i>Central Province (10 plots).</i>				
1932-33	1,958	2,001	1,301	258
1931-32	725	1,466	1,652	608
<i>Ashanti (4 plots).</i>				
1932-33	274	198	73	21
1931-32	455	102	37	8

The remainder of the major crop promises, according to the above figures, to be lower than at the same date last season in the Eastern Province, higher in the Central Province and lower in Ashanti.

Losses of young pods from disease and drought are always considerable, a fact that will no doubt lessen the November-February yields indicated above.

District reports up to 10 November indicated on the whole a lower production than did reports on 10 and 24 October. Eight districts (Anyinam, Efiduase, Huhunya Kibi, Koforidua, Nsawam, Saltpond and Tafo) estimated a larger crop than in 1931-32; five districts (Juaso, Oda, Sekondi-Dixcove, Asuansi and Bekwai), estimated a crop equal to that of last year: three district Dunkwa, Kumasi and Winneba estimated a smaller crop.

The publication of statistics of railings, shipments and stocks has been discontinued by the Department of Agriculture until figures of stocks not only in the Government sheds at Takoradi and on the beach at Accra but in the hands of merchants are obtainable.

Coffee.

Mexico: Picking began in October; production was expected to be very large and quality good. Yields were above those of the previous year.

Dominican Republic: The quality and yield of coffee this year are considered to be very satisfactory.

French Indo-China: Flowering was fairly satisfactory in Tonkin and berry formation fairly good in Annam despite some damage due to the typhoon in the north; these two countries are practically the only producers in the Union. In Laos berry-formation was normal. In some areas of Tonkin the Liberia crop was good; in Annam the bushes suffered from drought in August.

Tea.

India: According to a report dated November 17 received from the Government of India, the weather conditions during October in North India were, on the whole, seasonable and favourable to growth and crop prospects were fairly good. The season was closing in the Darjeeling (Bengal) district. Statistics to the end of October recorded an increase of 23 ½ million lbs. as compared with the outturn to the same date of last year.

In South India, heavy rain fell during the month of October and the crop was not coming in well. Prospects were only fair; the outturn was 11.33 % ahead of that to the same date of last year.

The total area under tea in India in 1931 was 807,000 acres against 806,000 in 1930 and 757,000, the average for 1925-1929; percentages: 100.1 and 106.5. Production is estimated at 394,000,000 lb. compared with 391,081,000 in 1930 and the five year average of 396,871,000; percentages: 100.7 and 99.3. Of the total 1931 production 391,000,000 lb. consisted of black tea and 3,000,000 of green tea.

French Indo-China: The rains of July increased the leafage in Annam and Tonkin, which are the only important producers in the Union. The crop was abundant in July August and September in Annam and good both in quality and quantity in September and October in Tonkin.

Groundnuts.

United States: The latest estimates of the total area and production of groundnuts are as follows: area: 1932: 2,421,000; 1931: 2,145,000; average 1926-1930: 1,779,000; percentages: 112.9 and 136.1; production: 1932: 1,403,050,000 lb.; 1931: 1,538,790,000 lb.; average: 1,197,352,000; percentages: 91.2 and 117.2

French Indo-China: Yields varied from fair to average in Tonkin and Annam, which are responsible for almost the entire production of the Union. In Cambodia the crop has been rather poor.

Java and Madura: The latest estimate of production of groundnuts this year is about 3 ½ million centals compared with 3.1 million in 1931 and 3.4 million, the average for the preceding quinquennium; percentages: 113 and 103.

Egypt: Harvesting has been completed; yields are average. Crop condition on 1 December was 100 as on 1 November against 89 on 1 December 1931.

Colza and sesamum.

Austria: The colza crop has grown slowly; at the beginning of December its crop condition was 2.8 against 2.3 on November 1 this year and 2.5 on December 1, 1931.

Greece: The increase of 15 % in area sown with sesame in 1932 with reference to that of 1931 and of 90 % on the 1926-30 mean and, still more, the favourable weather lead to expectations of a large production, amounting to 180,000 centals (9,000 short tons) against 166,000 (8,300) in 1931, an increase of 8.5 %, and 95,000 (4,800) in 1926-30, an increase of 88 %.

Hungary: Toward 10 December condition of winter colza was in places bad.

Poland: The estimate of the area under winter colza in 1931-32 has been reduced from 106,000 acres to 81,000 and now represents 76.6 % of the area in 1930-31 and 131.1 % of the average for the preceding five years.

Rumania: The area sown to winter colza as on 15 November is estimated at 13,000 acres against 62,000 on 15 November 1931 and 60,000 on 15 November 1930.

India: In November rainfall in Bihar and Orissa varied from light to heavy, decreasing towards the end of the month. In Bengal rainfall varied from light to

heavy and was in places excessive in the first part of November but the latter half of the month was dry and on November 30 standing crops in general were reported to be in satisfactory condition. No rain fell during the month in the Punjab. Cloudy weather slightly damaged sesamum in the Central Provinces.

Syria and Lebanon : The sesamum area is estimated at 5,800 acres against 8,900 last year and 17,800, the average for 1926-1930; percentages: 66 and 33. The production figure is 21,000 centals (1,000 short tons) compared with 61,000 (3,100) last year and 79,000 (3,900), the average for 1926-1930, percentages: 34 and 26.

Sericulture.

Indo-China : In Tonkin and Annam, the principal producing regions, rearing slackened at the end of the summer due partly to the low production of mulberry leaves; in Annam disease was widespread. Rearing, which was checked in August by the drought, recovered from September onwards in Annam; in Tonkin it was held up by floods in September but then recommenced and prospects in October seemed better than has been general in previous years. In Cambodia rearings were good and free from disease during the whole of the period July-October.

Sericulture.

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF COCOONS				
	1932	1931	Average to 1930	% 1932		1932	1931	Average to 1930	% 1932	
				1931	Aver. age				1931	Aver. age
1,000 ounces			= 100	= 100	1,000 pounds			= 100	= 100	
Bulgaria	28	22	43	122.9	64.0	2,866	2,446	4,741	117.2	60.5
*Spain	13	...	27	...	47.2	1,199	1,160	1,938	103.3	61.9
France	18	20	55	91.0	33.2	2,163	2,196	6,088	98.5	35.5
Italy	582	701	982	83.0	59.3	70,548	75,968	111,278	92.9	63.4
Korea s)	227	219	196	103.5	115.8	29,273	28,662	22,437	102.1	130.5
Japan { s)	2,591	2,806	2,615	92.3	99.1	375,332	435,419	407,819	86.2	92.0
Syria and Lebanon	3,045	3,158	3,534	96.4	86.2	331,384	367,114	385,838	90.3	85.9
	60	79	99	76.0	60.8	4,575	6,085	7,315	75.2	62.5
TOTALS . . .	6,551	7,005	7,524	93.5	87.1	816,141	917,890	945,516	88.9	86.3

* Country not included in the totals. — s) Spring cocoons. — i) Summer-autumn cocoons.

FODDER CROPS

Austria : At the beginning of December the crop condition of the principal fodder crops was as follows: mangolds: 2.7 (against 2.7 on November 1 this year and 2.5 on December 1, 1931); red clover: 2.5 (2.5, 2.6); alfalfa: 2.8 (2.8, 2.8); mixed clover: 2.4 (2.6, 2.5); permanent meadows: 3.2 (2.5, 2.6) and pasture: 2.9 (2.9, 3.1).

Belgium : Meadows have remained green and have continued to contribute to food supply of stock.

Irish Free State : The weather was fine and mild practically throughout November and the rainfall the lowest recorded for ten years. Pastures provided good rough keep for livestock for a much later period than usual.

Great Britain and Northern Ireland : The mild weather of November was favourable though work on heavy land was hindered by the rains in the latter part of the month. These conditions favoured the continued growth of root crops, while pastures remained fairly fresh until the end of the month. The mangold crop in England and Wales is generally good, the roots being of fair size and quality; that of turnips and swedes varied greatly in size and quality. In Scotland a large proportion of the turnip crop had not been lifted by the end of the month.

In Northern Ireland the greater part of the mangold crop was lifted and stored in the early part of the month; some heavy crops were reported but generally the yield is average. There are also some heavy crops of turnips but the yield was generally expected to be about average. The average yield of hay was 1.7 tons per acre, a decrease of 2 cwt per acre on the 1927-31 average.

Production of fodder crops in England and Wales and in Scotland is now estimated as follows :

				Average	% 1932	% 1932
				1926-1930	= 100	= 100
Turnips and swedes :						
England and Wales	(million centsals) . .	168.8	156.3	205.2	108.0	82.3
	(thousand sh. tons). .	8,439	7,816	10,259		
Scotland	(million centsals) . .	129.5	121.8	143.0	106.3	90.5
	(thousand sh. tons). .	6,474	6,091	7,150		
Mangolds :						
England and Wales	(million centsals) . .	97.1	101.3	131.9	88.2	73.6
	(thousand sh. tons). .	4,856	5,066	6,597		
Scotland	(million centsals) . .	0.5	0.4	0.5	111.7	95.9
	(thousand sh. tons). .	25	22	26		
Temporary meadows :						
England and Wales	(million centsals) . .	48.7	58.4	47.8	83.5	102.0
	(thousand sh. tons). .	2,437	2,918	2,390		
Scotland	(million centsals) . .	14.8	16.3	14.9	90.5	99.1
	(thousand sh. tons). .	738	815	745		
Permanent meadows :						
England and Wales	(million centsals) . .	103.3	119.3	100.3	86.6	103.0
	(thousand sh. tons). .	5,165	5,967	5,015		
Scotland	(million centsals) . .	5.8	5.9	6.0	98.5	97.3
	(thousand sh. tons). .	292	297	300		

The revised estimate of area under permanent meadows (including timothy) is 166,500 acres against 165,600 in 1931 and 167,700 on the average of 1926-30.

Hungary : The prolongation of autumn allowed livestock to remain longer on pasture so that in the majority of departments fodder supplies will be adequate for wintering.

Toward 10 December health was generally satisfactory.

Italy : The crop conditions of irrigated grassland, meadows; autumn-winter catch crops and legumes are satisfactory.

Norway : The latest estimates of production of the principal fodder crops in 1932 compared with those of 1931 and the average are as follows :

	1932	1931	Average 1926-1930	% 1932 1931 = 100	Aver. = 100
Permanent meadows (hay) (ooo centals).	9,082	9,629	11,742	94.3	77.3
(ooo sh. tons).	454	481	587		
Temporary meadows (hay) (ooo centals).	45,001	46,139	39,988	97.5	112.5
(ooo sh. tons).	2,250	2,307	1,999		
Mangolds (ooo centals).	13,962	11,420	10,356	122.3	134.8
(ooo sh. tons).	698	571	518		
Kohl-rabi (ooo centals).	3,847	3,023	2,139	127.2	179.9
(ooo sh. tons).	192	151	107		

Poland : The crop condition of clover on November 15 by the system of the country was 3.4, the same as on 15 October 1932, compared with 3.3 as on 15 November 1931.

United States : In the last week of November pastures continued in rather good condition for the season of the year east of the Mississippi river but in the central and southern great Plains moisture was needed, badly in places. Moisture was needed more or less generally in the Southwest but in the Northwest conditions were largely favourable.

The latest estimates of area and production of hay are as follows :

	1932	1931	Average 1926-1930	% 1932 1931 = 100	Aver. = 100
<i>Area (ooo acres)</i>					
Tame hay	52,819	53,879	54,486	98.0	96.9
Wild hay	14,298	12,259	13,635	116.6	104.9
<i>Total</i>	<i>67,117</i>	<i>66,138</i>	<i>68,121</i>	<i>101.5</i>	<i>98.5</i>
<i>Production</i>					
Tame hay (ooo centals)	1,392,180	1,301,160	1,446,116	107.0	96.3
(ooo sh. tons)	69,609	65,058	72,306		
Wild hay (ooo centals)	243,580	167,560	230,808	145.4	105.5
(ooo sh. tons)	12,179	8,378	11,540		
<i>Total</i> (ooo centals)	<i>1,635,760</i>	<i>1,468,720</i>	<i>1,676,924</i>	<i>111.4</i>	<i>97.5</i>
(ooo sh. tons)	<i>81,788</i>	<i>73,436</i>	<i>83,846</i>		

Palestine : Early sown crops of oats and vetch are well up; sowing is in progress. In irrigated areas *bersim* (clover) is well forward with the first cutting in progress.

Egypt : First cuttings of *bersim* were begun in early-sown areas. Germination and growth were satisfactory. Crop condition on 1 December was 100 as on 1 November and on 1 December 1931.

LIVESTOCK AND DERIVATIVES

Livestock in Sweden.

In the subsequent table the number of livestock in Sweden in 1932 is compared with the corresponding data for 1931, 1930 and 1927.

It will be seen from the table that the number of horses, in contradistinction to what has occurred in recent years in many countries due to the motorization of agriculture, has continued without interruption its upward movement, the

figure for 1932 showing an increase of 6.3 % on that of 1927. The movement is analogous for cattle, their number in 1932 exceeding that of 1927 by 7.6 %. On the other hand sheep-rearing shows a further regression and the number of sheep in 1932 is only 85.9 % of that in 1927. The number of pigs has undergone rather marked fluctuations from the maximum of 1930; it has fallen gradually and the 1932 figure, though 5.5 % higher than that of 1927, is 17 % below the 1930 maximum and 15.2 % below the 1931 figure.

CLASSIFICATION	15-VII-1932	15-VII-1931	15-VII-1930	15-VII-1927
<i>Horses</i>	659,600	656,200	653,000	620,256
<i>Cattle</i>	3,120,500	3,109,200	3,060,000	2,899,130
of which :				
<i>cows</i>	2,042,700	2,037,100	2,033,000	1,874,114
<i>heifers, bullock and calves</i>	1,007,500	1,004,400	962,000	999,016
<i>Sheep</i>	607,700	634,800	652,000	707,849
<i>Pigs</i> 1)	1,462,475	1,724,408	1,761,067	1,386,791
of which :				
under 3 months	609,422	746,766	781,774	541,851
boars from 3 to 9 months	1,599	2,084	5,871	5,239
boars 9 months and over	4,587	5,057		
sows 9 months and over	139,334	161,836	167,266	129,972
other pigs 3 months and over	707,533	808,665	806,156	709,729

1) Census of 15 September.

Dairy-production in the United States.

Below are given the data of production of the principal dairy products manufactured in the United States in 1931 and previous years :

PRODUCTS	1927	1928	1929	1930	1931	% 1931/1930
	(ooo lb.)					
<i>Creamery butter</i>	1,496,495	1,487,049	1,597,027	1,594,826	1,667,452	104.6
<i>Total cheese</i>	406,686	437,519	483,933	512,319	492,379	96.1
Of which :						
<i>Whole milk cheese</i>	307,777	335,253	370,314	389,834	374,648	96.1
<i>Swiss cheese</i>	18,141	16,718	19,406	26,393	28,234	107.0
<i>Brick and Munster cheese</i>	31,546	28,960	31,763	34,471	35,484	102.9
<i>Cream and Neufchatel cheese</i>	25,962	30,589	34,405	33,213	33,637	101.3
<i>Total condensed milk</i>	1,855,722	1,918,427	2,206,648	2,114,448	1,970,007	93.2
Of which :						
<i>Sweetened skimmed milk</i>	145,345	156,089	204,107	161,063	142,118	88.2
<i>Sweetened, unskimmed milk</i>	201,023	177,737	197,611	183,047	143,356	78.3
<i>Unsweetened, skimmed milk</i>	134,185	158,243	153,624	156,923	145,502	92.7
<i>Unsweetened, unskimmed milk</i>	1,375,169	1,426,358	1,651,306	1,613,415	1,539,031	95.4
<i>Condensed or evaporated buttermilk</i>	99,180	102,452	107,288	96,431	64,619	67.0
<i>Dried or powdered buttermilk</i>	38,435	45,502	54,215	67,031	50,535	75.4
<i>Powdered whole milk</i>	11,464	9,605	13,202	15,440	12,627	81.8
<i>Powdered skim milk</i>	118,123	147,996	207,579	259,991	261,938	100.7
<i>Dried casein</i>	18,033	22,151	30,537	41,819	35,335	84.5
<i>Malted milk</i>	22,116	21,128	22,850	22,691	19,197	84.6
<i>Ice cream of all kinds :</i>						
<i>(in thousand Imperial gallons)</i>	188,820	193,340	212,020	200,473	173,401	86.5
<i>(in thousand American gallons)</i>	226,756	232,185	254,618	240,750	208,239	

1) Incomplete figure excluding the production of case goods which averaged about 10 million lb. for the period 1926-28.

— 2) Including whey butter.

The most noteworthy feature of the above table is the increase of 4.6 % in the production of creamery butter in 1931 compared with 1930. In the case of cheese, although increases occurred in the less important types, total production showed a decrease of about 4 % but still remained at a relatively high level compared with recent years; the most important type, whole milk cheese, decreased in output by about 4 %. The total production of condensed milk decreased by 6.8 % and most other products declined, apart from powdered skim milk, which was well maintained.

In the first nine months of 1932 production of American cheese, which, in 1931, consisted, to the extent of over 99 %, of whole milk cheese, amounted to 284,615,000 lb.; production of creamery butter in the same period was 1,297,610,000 lb.

Sheep in New Zealand.

The interim return of sheep as at 30 April 1932 (published in the Monthly Crop Report for August) can now be supplemented by details of the various classes. The definitive figure for the total is rather higher than the figure previously published but the continuance of the downward movement is still marked.

Number and Classification of Sheep at 30 April
(thousands)

YEARS	Stud and flock rams	Stud breeding ewes	Stud dry ewes	Stud lambs	Total stud sheep and flock rams	Sheep of distinctive breed not entered in flock-books and crossbred sheep				Grand total stud and other sheep
						Wethers	Breeding ewes	Dry ewes	Lambs	
1932	469	232	8	165	874	2,731	16,831	1,260	6,996	28,692
1931	462	238	8	170	878	3,430	17,370	1,203	6,912	29,793
1930	449	244	8	175	876	3,368	17,320	1,070	8,208	30,841
1929	422	220	7	157	806	3,289	16,388	875	7,693	29,051
1928	396	206	7	146	755	3,025	15,328	862	7,164	27,134
1927	388	199	9	145	741	3,075	14,633	823	6,377	25,649
1926	371	192	10	139	711	3,212	13,756	1,070	6,156	24,905
1925	356	185	8	131	680	3,064	13,530	876	6,398	24,548
1924	333	180	10	132	654	2,808	12,897	1,037	6,381	23,776
1923	330	173	9	120	632	2,552	12,890	809	6,199	23,081

It may be particularly noted that the increase in the number of breeding ewes, which has been continuous during the past decade, has been interrupted. The decline in the number of stud breeding ewes began a year previously. Stud and flock rams, on the other hand, continue to increase in number. The number of lambs, which fell sharply in 1931, show a relatively small increase in 1932. The number of wethers is the smallest since 1923.

Condition of Livestock and Dairy Production.

Irish Free State: Thanks to the mild weather pastures provided good rough keep much later than usual. Supplies of cereals, hay, straw and roots are ample for all normal requirements. Milk yields showed the usual seasonal decline but were otherwise up to normal.

France : Due to the absence of severe cold the seasonal fall in butter production has been less noticeable than usual.

Great Britain and Northern Ireland : In England and Wales it is expected that in the absence of adverse conditions winter keep should suffice. In Scotland supplies of dry fodder are ample, while roots are generally considered to be sufficient for the winter; concentrated feedingstuffs are available in sufficient quantities excepting bran, which is scarce. In Northern Ireland hay is plentiful on most farms and is being used extensively in many districts for the feeding of outlying cattle.

Reports of livestock condition from Northern Ireland state that store cattle are in good health and condition and that no reports of disease have been received. Dairy stock are also in good condition.

Milk supplies in November were normal for the season throughout the area.

United States : In the last week of November conditions except where the range needed moisture (see "Fodder crops") and stock water was scarce, were unusually favourable for livestock in the great western grazing country. They were especially favourable in the Pacific Northwest as a result of abundant moisture and unusually mild weather.

According to an official estimate of November 23, milk production on farms in 1931 amounted to 101,815 million lb. compared with 99,705 million in 1930 and 98,782 million in 1929. It was also estimated that, in addition, about 2,807 million lb. of milk is produced annually in towns, villages and rural places not classed by the census as farms. The utilisation of the milk produced on farms in 1931 is estimated as follows :

Milk produced on farms 1931.

	Million lb.
Fed to calves, made into farm butter or consumed as fresh milk or cream on the farm where produced	25,398
Skimmed on the farm for sale of butterfat	34,973
Retailed locally by producers	6,943
Delivered to creameries, condenseries, cheese factories, milk receiving stations, etc.	34,501
<i>Total</i>	<i>101,815</i>

Hog slaughter under Federal inspection for the entire marketing year October 1931 to September 1932, amounting to 46,655,000 head, was 7.1 % larger than that of the preceding marketing year. Because of the lighter average weights of hogs marketed in 1931-32, the increase in total dressed weight of federally inspected hog slaughter over that of 1930-31 was not so large as the increase in the number of head slaughtered. In August and September, slaughter supplies and weights of hogs were larger than usual due largely to the delayed marketings of hogs, which were occasioned by producers withholding hogs from the market earlier in the summer when prices were extremely low.

Hog marketings from the 1932 spring pig crop in the period October 1932-April 1933 are expected to be smaller compared with the same period of the preceding marketing year and to result in a reduction of slaughter by roughly 7 %. The ratio of hog prices to corn prices is expected to continue favourable for feeding through most of the winter.

Union of South Africa : October was generally hot and dry but the southern Karoo had good rains. Pastoral conditions in the Cape southwestern districts, the Karoo and most of the Eastern Province were exceptionally favourable and stock were in

very good condition. Many reports of severe blow-fly infestation have been received, however, from the last two areas. Small stock were still in fair condition in the eastern highveld of the Transvaal and the inland areas of Natal but good rains were required for the young grazing. Owing to the low rainfall of the past three years in Northern Transvaal, water for stock and irrigation is a very serious problem. Generally the condition of cattle in the Transvaal lowveld was poor and serious losses had been suffered.

LATEST INFORMATION

United States. — The areas sown to winter wheat and rye this winter for harvest in 1933 compared with the figures for last year and the average, are as follows:

	1932-33	1931-32	Average 1926-27 to 1930-31	% 1932-33 1931-32 = 100	% 1932-33 Av. = 100
Winter wheat	39,902 (1)	40,420	44,162	98.7	90.4
Winter rye (2)	4,649 (1)	5,000	3,782	93.0	122.9

Crop condition of winter wheat on December 1 was 68.9, the lowest for the period since 1863, compared with 79.4 on December 1, 1931. Corresponding data for winter rye are 76.3 and 81.0.

According to a telegram of December 22 received from the Department of Agriculture the crop condition of winter wheat remains unchanged from the previous week.

The situation on December 1 and estimates of probable abandonment of the area sown due principally to drought indicate the possibility that next year's production of winter wheat may fall below 400 million bushels.

(1) Revised figure.

(2) Acreage sown for grain, allowance being made for average diversion to other uses.

IMPORT DUTIES ON CEREALS AND FLOUR

CHANGES TO BE MADE IN THE DUTIES PUBLISHED ON PAGES 160 TO 163 OF THE CROP REPORT FOR FEBRUARY
(SEE ALSO THE SAME HEADING IN THE PRECEDING CROP REPORTS FOR THIS YEAR).

COUNTRY	PRODUCT	Date when enforced	Original data per metric quintal	Data in Amer. cents bushel or bag
Finland	Maize	24 October	Fmk. 20.00	7.35
Great Britain and N. Ireland	Wheat 1)	15 November	2) sh. 2/-	1.97
"	Maize, white, flat 1)	"	10 % ad val.	10 % ad val.
"	Wheat flour 3)	30 October	4) sh. 2/9	31.57
Czechoslovakia	Wheat and wheat flour	1 December	5)	5)
"	Rye, supplementary duty	10 November	Cz. crs. 50.00	37.74
"	Wheat- and rye flour, supplementary duty	"	Cz. crs. 65.00	171.70

1) Excepting goods consigned immediately from and grown in the British Empire — 2) Duty per 480 lbs. — 3) Compensatory duty 4) Duty per 280 lbs. — 5) Quota abolished for the months of December 1932, January and February 1933; import subject to special licence.

TRADE

COUNTRIES	OCTOBER				THREE MONTHS (August 1-October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931-32	1931-32
Wheat. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	203	802	0	0	454	1,885	0	0	5,688	0
Hungary	322	1,647	0	0	1,323	3,331	0	0	7,912	0
Lithuania	0	0	0	0	0	0	0	0	20	0
Poland	20	37	68	33	44	161	132	73	1,598	346
Rumania	0	3,250	0	0	22	14,665	2	0	21,202	7
U. S. S. R.	1,929	8,316	0	0	5,564	31,323	1,382	0	39,423	1,515
Yugoslavia	40	924	0	0	240	4,557	0	0	8,796	0
Canada	24,116	11,356	11	13	51,216	27,102	20	33	109,685	75
United States	1,938	7,123	575	1,122	5,763	17,509	1,224	2,588	52,805	7,361
Argentina	1,843	3,750	—	—	6,034	10,582	—	—	81,435	—
Chile . . . . .	...	...	...	...	2	0	0	0	9	0
Turkey	7	73	0	0	15	104	0	0	913	0
Algeria . . . . .	...	...	...	...	2,011	756	90	300	4,837	1,462
Tunis	472	170	20	44	1,684	1,250	79	104	5,337	401
Australia	3,120	3,115	0	0	7,430	9,656	0	0	73,793	0
<i>Importing Countries:</i>										
Germany	2,663	1,682	1,801	1,444	6,596	3,558	5,604	2,984	7,313	21,006
Austria	0	0	397	483	0	0	1,155	1,268	0	6,418
Belgium	126	381	2,718	3,417	547	1,468	6,449	9,162	3,587	31,478
Denmark	7	2	661	1,592	13	9	2,224	3,100	9	8,719
Spain	0	0	88	0	0	0	3,221	0	0	3,049
Estonia	0	0	0	42	0	0	0	108	0	256
Irish Free State	0	0	553	838	0	0	1,870	2,251	13	6,369
Finland	0	0	84	22	0	0	254	55	0	428
France	13	2	1,883	4,956	15	4	10,102	14,484	9	53,123
Gr. Brit. and N. Ire.	13	46	11,779	16,246	99	132	31,449	47,622	1,206	137,664
Greece	0	0	1,036	1,310	0	0	2,978	3,702	0	14,116
Italy	4	4	780	606	13	18	1,995	1,700	18	22,567
Latvia	0	0	2	66	0	0	15	170	0	575
Norway	0	0	236	408	0	0	699	646	0	3,294
Netherlands	40	9	1,775	2,114	234	24	4,246	4,863	110	17,919
Portugal	—	—	4	2	—	—	163	386	—	1,393
Sweden	0	0	247	278	7	0	1,021	666	9	4,054
Switzerland	2	0	1,096	1,574	11	0	3,177	3,858	18	12,683
Czechoslovakia	0	2	60	1,314	2	2	590	3,569	4	13,199
India	4	26	0	0	11	121	0	179	183	179
Japan	—	—	750	1,113	—	—	1,847	2,575	—	17,070
Syria and Lebanon	26	73	7	0	134	276	44	0	511	328
Egypt . . . . .	...	...	...	...	0	0	0	4	2	994
Union of South Africa . . . . .	...	...	...	...	0	0	97	271	2	1,034
New Zealand . . . . .	...	...	...	...	0	0	353	15	0	258
Totals	36,908	42,790	26,651	39,037	89,484	128,513	82,282	107,736	426,447	389,340
Rye. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	20	254	0	0	44	650	0	0	990	0
Hungary	108	148	0	0	298	348	0	0	1,486	0
Lithuania	0	0	0	0	2	0	0	2	9	2
Poland	774	212	31	15	1,779	743	40	29	2,513	123
Rumania	0	309	0	0	9	948	0	0	1,676	0
U. S. S. R.	591	4,050	—	—	1,936	8,453	—	—	23,642	—
Canada	227	40	0	0	1,133	392	0	0	5,084	0
United States	15	0	—	—	15	13	—	—	622	—
Argentina	44	93	—	—	119	243	—	—	4,766	—
Turkey	46	77	0	0	112	165	0	0	690	0
Algeria . . . . .	...	...	...	...	9	0	0	0	31	0
<i>Importing Countries:</i>										
Germany	324	584	414	414	1,155	1,038	2,555	783	2,046	12,103
Austria	0	0	7	101	0	0	97	269	0	1,728
Belgium	4	55	267	388	112	146	622	822	639	2,709
Denmark	0	0	798	578	0	0	2,141	1,676	0	4,731
Estonia	0	0	0	0	0	0	0	4	0	13
Finland	0	0	0	77	0	0	655	201	0	1,202
France	0	0	26	243	0	0	194	395	0	1,737
Italy	0	0	35	9	0	0	82	29	0	157
Latvia	0	0	0	9	0	0	0	40	0	99
Norway	0	0	439	359	0	0	787	897	—	3,415
Netherlands	4	20	370	613	18	137	1,235	1,550	331	4,405
Sweden	0	0	161	0	0	0	231	218	26	1,345
Switzerland	0	0	15	9	0	0	79	31	0	108
Czechoslovakia	0	0	4	1,014	2	2	84	1,799	7	5,124
Totals	2,157	5,842	2,406	3,990	6,743	13,282	8,802	8,745	44,558	39,001

(2) 2) See notes page 871.

COUNTRIES	OCTOBER				THREE MONTHS (August 1-October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931-32	1931-32
Wheat flour. — Thousand cents (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Germany	84	2	9	11	104	7	18	49	64	229
Belgium	4	9	9	4	13	20	29	22	73	51
Bulgaria	9	71	0	0	33	205	0	0	752	0
Spain	0	0	0	0	0	2	0	0	18	0
France	410	578	40	24	814	2,004	130	90	4,533	262
Hungary	132	306	0	0	340	556	0	0	2,130	0
Italy	381	203	20	29	1,312	467	51	68	2,218	287
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	2	2	0	0	4	7	0	0	26	0
Poland	26	77	0	2	60	163	0	2	511	4
Rumania	2	141	0	0	13	390	0	0	855	0
Yugoslavia	9	4	0	0	18	11	0	0	104	0
Canada	1,036	1,093	2	4	2,436	3,210	4	11	10,551	40
United States	736	1,539	0	0	2,280	4,182	0	0	15,091	0
Argentina	62	123	—	—	190	478	—	—	1,545	—
Chile	—	—	—	—	4	4	0	0	29	0
India	31	101	0	0	126	236	0	0	836	0
Turkey	0	0	0	0	0	0	0	0	11	4
Japan	423	137	2	13	1,182	677	4	37	3,470	106
Algeria	—	—	—	—	99	20	7	7	157	57
Tunis	11	4	2	2	44	44	2	2	146	20
Australia	1,237	1,060	0	0	2,881	4,431	0	0	13,995	0
<i>Importing Countries:</i>										
Austria	0	0	119	99	0	2	196	179	7	1,279
Denmark	2	0	51	152	7	4	181	384	13	1,290
Estonia	0	0	0	2	0	4	0	9	11	15
Irish Free State	0	2	168	414	0	9	688	1,032	26	4,045
Finland	0	0	108	262	0	0	335	606	0	1,596
Gr. Brit. and N. Irel.	399	498	626	1,164	1,279	1,288	1,980	3,131	5,628	11,224
Greece	0	0	2	7	0	0	9	24	0	66
Norway	0	0	86	108	2	2	243	377	11	1,358
Netherlands	0	18	84	88	11	26	209	265	71	723
Portugal	—	—	9	31	—	—	60	68	—	201
Sweden	0	0	0	4	0	0	4	11	0	37
Czechoslovakia	0	2	26	143	2	2	123	315	9	1,182
Ceylon	—	—	37	44	—	—	97	106	—	401
Javo and Madura	—	—	—	—	—	—	150	203	—	1,138
Indo-China	—	—	37	29	—	—	93	108	—	388
Syria and Lebanon	—	—	79	13	13	44	112	82	93	397
Egypt	—	—	—	—	0	0	18	168	0	2,430
Union of South Africa	—	—	—	—	0	0	0	4	2	15
New Zealand	—	—	—	—	0	0	44	40	4	238
Totals	5,007	5,985	1,516	2,651	13,269	18,497	4,787	7,402	62,990	29,083
Barley. — Thousand cents (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	7	82	0	0	60	289	0	0	406	0
Spain	2	0	0	0	4	4	0	0	15	0
Hungary	106	13	0	0	134	37	0	0	55	7
Lithuania	0	0	0	0	0	0	0	0	0	0
Poland	410	752	0	0	948	1,160	0	0	3,146	0
Rumania	1,660	2,965	0	0	7,145	9,101	0	0	15,911	0
Czechoslovakia	875	280	0	0	1,440	397	0	0	2,112	2
U. S. S. R.	1,332	4,392	—	—	3,953	11,330	—	—	17,789	—
Canada	344	106	0	0	1,457	2,048	0	0	6,499	0
United States	536	351	—	—	1,426	1,144	—	—	2,524	—
Argentina	9	84	—	—	29	209	—	—	6,274	—
Chile	—	—	—	—	—	—	—	—	—	—
India	—	—	0	—	—	37	0	0	492	0
Syria and Lebanon	0	7	29	29	2	2	82	46	666	0
Turkey	99	448	0	0	386	772	0	0	384	104
Egypt	—	—	—	—	0	0	0	0	2,996	0
Tunis	463	4	4	154	1,387	110	18	240	820	273
Australia	9	0	0	0	20	90	0	0	820	556
<i>Importing Countries:</i>										
Germany	0	0	357	1,750	0	0	838	3,713	18	15,172
Austria	0	0	179	355	0	0	448	664	0	2,075
Belgium	231	179	1,323	1,221	527	322	2,646	2,754	1,676	9,396
Denmark	42	75	192	511	82	82	437	1,631	470	3,331
Irish Free State	0	4	7	4	0	4	9	11	26	483
France	0	4	1,058	961	0	7	2,665	1,905	15	9,482
Gr. Brit. and N. Irel.	7	2	1,695	2,683	20	2	4,273	5,948	31	14,039
Greece	0	0	2	0	0	0	2	0	0	172
Italy	0	0	53	97	0	0	335	137	0	800
Latvia	0	0	0	0	0	0	0	2	0	4
Norway	0	0	29	66	0	0	37	159	0	794
Netherlands	0	42	1,508	1,413	7	57	2,787	3,051	262	9,112
Switzerland	0	0	—	304	0	0	1,036	571	2	2,989
Yugoslavia	0	0	0	13	2	9	0	33	13	37
Totals	6,136	9,790	6,994	9,561	19,088	27,550	16,354	21,791	64,838	71,350

COUNTRIES	OCTOBER				THREE MONTHS (August 1-October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931-32	1931-32
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Irish Free State . . .	4	20	2	42	9	29	4	123	73	220
Hungary	0	0	0	0	2	2	0	0	7	2
Lithuania	0	0	0	0	0	0	0	0	20	0
Poland	4	4	0	0	11	9	0	0	62	0
Rumania	198	57	0	0	520	179	0	0	295	0
Czechoslovakia . . .	414	26	0	2	721	99	0	53	884	57
Yugoslavia	0	0	0	0	0	0	0	0	2	0
Canada	728	368	121	139	1,356	860	306	302	4,628	655
United States	141	216	0	0	626	388	0	0	891	22
Argentina	560	1,001	—	—	1,797	2,674	—	—	16,250	—
Chile . . . . .	...	...	...	...	35	35	0	0	223	0
Algeria . . . . .	...	...	...	...	22	9	11	190	273	584
Tunis	18	26	0	0	68	106	0	0	212	0
Australia	20	4	0	0	60	15	0	0	108	2
<i>Importing Countries:</i>										
Germany	0	0	4	40	0	2	20	154	9	223
Austria	0	0	86	115	0	0	243	298	0	1,462
Belgium	0	0	11	77	4	0	101	386	37	1,501
Denmark	13	9	2	18	18	20	37	196	66	474
Estonia	0	0	0	2	0	0	0	2	0	7
Finland	0	2	0	0	0	2	9	40	20	55
France	0	0	123	97	2	2	545	357	7	3,214
Gr. Brit. and N. Irel.	4	7	608	935	7	22	1,607	2,732	205	8,494
Italy	0	0	315	267	0	0	778	681	0	4,074
Latvia	0	0	0	4	0	0	0	7	0	7
Norway	0	0	0	11	0	0	11	73	2	273
Netherlands	0	4	216	187	2	13	536	534	44	2,381
Sweden	7	0	40	104	11	0	192	403	181	1,157
Switzerland	0	0	271	337	0	0	825	1,010	2	5,033
Totals	2,111	1,747	1,799	2,381	5,273	4,466	5,225	7,541	24,499	29,697
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>					TWELVE MONTHS (November 1-October 31)				TWELVE MONTHS (Nov. 1 Oct 31)	
Bulgaria	227	95	0	0	2,890	3,477	0	0	—	—
Rumania	1,914	1,120	0	0	34,366	18,638	2	2	—	—
Yugoslavia	276	20	0	15	1,825	6,420	26	24	—	—
United States	1,043	112	13	4	3,084	1,314	220	520	—	—
Argentina	10,512	24,264	—	—	175,786	198,743	—	—	—	—
Brazil . . . . .	...	...	—	—	0	18	—	—	—	—
Java and Madura . . .	46	53	—	—	2,467	2,407	—	—	—	—
Indo-China	880	414	—	—	3,459	1,584	—	—	—	—
Syria and Lebanon . .	0	2	4	0	7	159	37	49	—	—
Turkey	15	13	0	0	373	212	0	0	—	—
Egypt . . . . .	...	...	...	...	11	4	44	139	—	—
Union of South Africa .	1,168	1,113	0	0	4,991	3,298	—	—	—	—
<i>Importing Countries:</i>										
Germany	0	0	767	966	0	0	17,007	10,007	—	—
Austria	0	0	434	692	0	2	7,621	6,270	—	—
Belgium	115	163	1,049	1,418	1,385	955	18,691	17,075	—	—
Denmark	0	0	840	1,338	0	0	21,233	13,539	—	—
Spain	0	0	240	212	0	0	6,931	3,666	—	—
Irish Free State . . .	0	0	1,019	1,521	0	26	13,658	12,044	—	—
Finland	0	0	49	53	0	0	582	355	—	—
France	0	2	2,346	3,307	26	40	25,869	23,755	—	—
Gr. Brit. and N. Irel.	256	245	5,384	7,024	3,208	2,407	64,058	53,281	—	—
Greece	0	0	9	11	0	0	3,382	373	—	—
Hungary	29	2	0	75	93	240	939	2,337	—	—
Italy	2	0	262	1,680	7	7	15,737	17,447	—	—
Norway	0	0	362	328	0	0	4,092	3,977	—	—
Netherlands	13	9	2,088	3,618	223	273	36,928	32,441	—	—
Poland	0	0	9	26	0	0	126	496	—	—
Portugal	—	—	115	134	—	—	1,407	1,605	—	—
Sweden	0	0	344	809	0	0	6,083	7,311	—	—
Switzerland	0	0	273	608	2	2	3,717	3,611	—	—
Czechoslovakia . . .	0	0	194	1,700	0	2	9,958	13,115	—	—
Canada	0	0	434	787	13	9	3,891	4,760	—	—
Japan	—	—	2	123	—	—	1,695	1,689	—	—
Tunis	0	0	0	26	0	9	324	298	—	—
Totals	16,496	27,627	16,237	26,475	234,216	241,246	264,258	230,186	—	—

1) 2) See notes page 871.

COUNTRIES	OCTOBER				TEN MONTHS (January 1-OCTOBER 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931

Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	134	75	0	0	732	606	0	0	833	0
Italy	273	231	2	0	2,553	2,606	44	49	3,325	53
United States	163	324	9	11	2,196	2,191	146	276	2,771	328
Brazil	—	—	—	—	569	1,482	—	—	1,993	—
India	1,682	3,056	29	24	43,078	41,769	—	4 74	48,442	692
Indo-China	1,731	1,230	—	—	22,053	17,752	—	—	20,715	—
Siam	3,067	2,022	—	—	28,493	20,433	—	—	25,029	—
Egypt	—	—	—	—	185	525	708	302	686	833
<i>Importing Countries:</i>										
Germany	84	192	1,109	871	902	1,140	7,613	7,641	1,373	8,962
Austria	0	0	42	42	0	0	454	496	0	756
Belgium	15	15	71	112	185	150	985	1,182	190	1,349
Denmark	0	0	11	13	0	0	99	123	—	157
Estonia	—	—	2	4	—	—	15	29	—	33
Irish Free State	0	0	2	2	—	0	40	44	0	53
France	55	97	802	875	661	794	6,764	5,670	937	6,792
Gr. Brit. and N. Irel.	9	60	306	280	146	223	2,326	2,216	271	2,690
Greece	—	—	31	33	—	—	412	445	—	540
Hungary	0	0	29	64	0	2	346	401	2	481
Latvia	0	0	4	4	0	0	18	71	0	82
Lithuania	0	0	2	2	0	0	15	20	0	22
Norway	0	0	4	4	0	0	62	99	0	117
Netherlands	218	214	181	203	1,587	2,161	2,608	4,603	2,480	4,963
Poland	29	115	0	181	276	414	1,027	1,684	606	1,726
Portugal	—	—	55	49	—	—	739	516	—	613
Sweden	—	—	0	0	—	—	90	123	—	123
Switzerland	0	0	53	49	0	0	317	342	0	454
Czechoslovakia	0	0	46	104	0	0	866	880	0	1,127
Yugoslavia	0	0	44	37	2	2	384	613	4	511
Canada	0	0	11	42	9	0	531	613	0	710
Chile	—	—	—	—	—	—	163	439	—	441
Ceylon	0	0	743	860	4	15	8,810	8,622	18	10,196
Java and Madura	—	—	—	—	33	216	2,509	5,005	232	6,323
Japan	18	132	220	245	650	4,118	2,546	2,315	4,195	2,773
Syria and Lebanon	0	0	33	31	0	0	280	262	0	322
Turkey	0	0	4	15	0	0	71	161	0	183
Algeria	—	—	—	—	9	2	146	101	2	179
Tunis	0	0	2	0	0	0	33	26	0	31
Union of South Africa	—	—	—	—	0	0	639	829	0	1,025
Australia	7	26	7	0	77	130	40	24	161	29
New Zealand	—	—	—	—	0	0	51	60	0	73
Totals	7,485	7,789	3,854	4,157	10,4402	96,731	41,952	46,756	114,265	55,742

Linseed. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Estonia	0	0	0	0	2	4	0	0	4	0
Lithuania	15	13	—	—	126	143	—	—	247	0
Argentina	3,027	3,126	—	—	36,980	36,297	—	—	41,652	—
India	157	229	0	0	1,429	2,066	0	0	2,520	0
Tunis	0	0	0	0	22	4	0	0	4	0
<i>Importing Countries:</i>										
Germany	0	0	1,027	399	13	11	8,179	6,380	13	7,507
Belgium	9	42	364	375	128	128	2,926	3,276	205	3,702
Denmark	—	—	22	37	—	—	401	373	—	417
Spain	—	—	24	35	—	—	428	368	—	465
Finland	0	0	9	0	0	0	51	51	0	68
France	0	0	639	776	7	15	4,330	4,945	18	5,814
Gr. Brit. and N. Irel.	0	0	1,113	639	4	4	7,359	6,389	4	7,599
Greece	0	0	7	13	0	0	66	84	0	95
Hungary	0	4	0	0	9	35	0	2	42	2
Italy	0	0	108	137	0	0	1,777	1,151	0	1,351
Latvia	7	4	9	0	26	62	49	77	106	90
Norway	0	0	44	0	0	0	373	234	0	289
Netherlands	2	0	862	937	73	46	8,417	8,181	49	9,277
Poland	0	0	9	0	2	7	148	271	7	273
Sweden	—	—	106	49	—	—	919	948	—	1,056
Czechoslovakia	0	0	68	35	2	4	604	489	7	582
Yugoslavia	0	0	13	4	0	0	97	117	0	126
Canada	203	0	0	64	205	483	256	90	584	194
United States	—	—	245	822	—	—	3,708	7,308	—	8,109
Japan	—	—	4	0	—	—	115	150	—	185
Australia	0	0	18	4	0	0	419	267	0	291
Totals	3,420	3,418	4,691	4,330	39,028	39,309	39,986	41,151	45,462	47,492

1) 2) See notes page 871.

COUNTRIES	OCTOBER				TEN MONTHS (January 1-October 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931	1931
Butter. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Austria	298	509	2	24	988	2,381	798	1,559	2,862	1,565
Denmark	26,284	33,793	15	159	295,656	320,454	895	1,435	378,429	1,596
Estonia	2,851	3,230	0	0	25,150	28,402	0	0	31,844	0
Irish Free State	4,431	5,110	13	40	34,145	39,386	2,617	3,258	42,307	3,323
Finland	2,346	2,344	0	0	28,177	33,528	0	0	38,367	0
Hungary	567	955	0	0	3,607	2,877	0	117	4,065	117
Latvia	4,680	4,004	0	0	36,859	36,438	0	22	41,313	24
Lithuania	1,797	2,097	0	0	19,870	17,822	0	0	19,191	0
Norway	148	31	7	31	2,119	1,446	86	302	1,629	379
Netherlands	4,572	6,158	119	974	32,245	64,942	8,911	5,481	72,660	8,887
Poland	33	2,425	49	2	2,679	25,450	860	31	27,470	31
Sweden	2,213	3,743	2	13	25,490	38,118	26	29	43,162	40
U. S. S. R.	—	—	—	—	40,583	40,872	—	—	68,024	—
Argentina	4,284	5,044	—	—	43,698	35,744	—	—	51,167	—
India	33	24	42	37	203	278	353	282	366	344
Syria and Lebanon	11	101	154	49	227	1,609	1,636	269	1,817	344
Australia	23,847	18,049	—	0	166,251	160,433	—	0	208,924	0
New Zealand	26,240	14,279	—	—	179,829	163,788	—	—	220,814	—
<i>Importing Countries:</i>										
Germany	2	22	13,468	21,535	476	258	127,126	181,395	269	220,950
Belgium	3	507	3,228	3,433	1,792	2,564	39,269	33,083	2,756	41,562
Spain	2	0	4	0	40	75	31	42	88	121
France	842	1,296	2,028	5,172	6,667	8,964	17,913	40,135	11,021	40,836
Gr. Brit. and N. Irel.	622	2,114	62,779	71,785	32,362	28,576	776,188	749,349	40,228	903,967
Greece	—	—	86	251	—	—	996	1,594	—	2,059
Italy	35	31	117	236	765	1,217	3,497	5,044	1,268	6,188
Switzerland	0	2	15	1,764	4	13	6,931	18,781	20	23,558
Czechoslovakia	0	115	280	163	26	483	2,608	3,680	661	4,107
Canada	112	1,834	9	0	3,307	9,720	196	2,818	10,681	2,822
United States	99	117	44	5	1,378	1,786	847	1,543	2,008	1,881
Ceylon	—	—	35	55	—	—	478	483	—	642
Java and Madura	—	—	—	—	—	—	6,413	6,380	—	8,514
Japan	—	—	2	13	—	—	115	179	—	231
Algeria	—	—	—	—	29	46	2,577	3,117	73	4,389
Egypt	—	—	—	—	351	24	531	1,545	77	2,041
Tunis	0	2	101	93	2	7	963	721	9	930
Totals	106,384	107,836	82,599	106,415	984,975	1,067,651	1,002,861	1,062,674	1,323,570	1,281,250
Cheese. — (Thousand lb.).										
<i>Exporting Countries:</i>										
Bulgaria	600	531	0	0	1,647	2,458	2	4	3,133	4
Denmark	1,530	1,058	7	55	11,797	8,040	108	527	9,383	604
Finland	798	443	2	2	6,404	5,013	15	22	5,776	33
Italy	7,679	9,343	994	994	55,032	73,888	7,427	8,949	89,043	10,115
Lithuania	187	229	0	0	1,462	2,083	4	9	2,546	11
Norway	417	300	11	64	2,049	2,196	179	470	2,840	362
Netherlands	17,205	17,765	112	159	146,758	162,243	880	1,091	190,460	1,345
Poland	75	346	73	79	712	2,465	483	659	2,884	761
Switzerland	4,431	4,127	357	1,239	36,824	48,449	4,008	6,332	54,307	8,470
Czechoslovakia	624	1,305	384	295	5,232	7,672	2,670	3,256	10,981	3,779
Yugoslavia	408	597	11	24	2,022	3,468	130	207	4,198	243
Canada	14,775	21,945	159	154	70,431	69,874	869	1,133	84,790	1,446
Australia	844	1,054	15	2	5,234	5,262	29	20	7,405	24
New Zealand	9,555	7,723	0	0	139,438	138,958	2	4	181,703	4
<i>Importing Countries:</i>										
Germany	322	1,063	12,637	11,471	3,217	5,992	94,292	101,909	7,372	120,404
Austria	631	692	258	401	3,144	5,415	3,205	5,088	6,232	5,781
Belgium	51	84	4,943	4,546	478	692	40,052	42,016	814	49,600
Spain	11	13	194	346	209	220	1,854	3,133	236	3,867
Irish Free State	2	29	183	357	31	1,887	2,262	1,194	2,687	—
France	2,637	3,269	4,747	8,232	23,354	27,117	42,168	69,669	33,239	82,810
Gr. Brit. and N. Irel.	750	701	22,269	31,180	6,072	6,094	277,512	265,823	7,346	323,691
Greece	159	13	95	485	379	157	1,378	2,978	190	3,960
Hungary	2	9	0	4	31	97	11	190	110	203
Portugal	—	—	84	117	—	—	437	633	—	842
Sweden	—	—	101	196	—	—	785	1,332	—	1,691
United States	106	141	6,301	7,178	1,257	1,506	44,176	50,740	1,863	61,992
India	0	0	88	108	2	2	728	710	7	886
Java and Madura	—	—	—	—	—	—	1,208	1,182	—	1,658
Syria and Lebanon	0	2	198	53	46	77	902	582	86	708
Algeria	—	—	—	—	110	130	8,016	5,761	172	11,182
Egypt	—	—	—	—	148	40	2,987	4,830	73	7,304
Tunis	0	0	280	132	9	24	1,726	1,530	24	2,033
Totals	63,799	72,782	54,503	67,853	524,529	579,760	540,131	583,051	707,407	708,100

COUNTRIES	OCTOBER				THREE MONTHS (August 1-October 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1931	1932	1931	1932	1931	1932	1931	1931-32	1931-32

Cotton. — Thousand centals (1 cental = 100 lb.).

<i>Exporting Countries:</i>										
United States . . .	5,448	5,445	20	13	11,923	9,599	90	77	46,787	620
Argentina . . .	42	42	—	—	245	205	—	—	586	—
Brazil . . .	—	—	—	—	2	7	—	—	183	—
India . . .	483	485	26	29	1,468	1,971	119	194	7,088	2,249
Egypt . . .	—	—	—	—	395	705	0	0	7,500	0
<i>Importing Countries:</i>										
Germany . . .	126	174	915	496	406	511	1,821	1,307	1,640	8,327
Austria . . .	0	0	44	40	0	0	101	110	0	551
Belgium . . .	22	40	176	141	62	112	375	379	348	1,349
Denmark . . .	—	—	9	7	—	—	26	22	—	139
Spain . . .	2	2	185	159	4	4	485	306	24	2,337
Estonia . . .	0	0	2	7	0	0	15	18	0	75
Finland . . .	0	0	15	11	0	0	37	40	0	159
France . . .	29	46	714	245	84	157	1,475	578	494	4,264
Gr. Brit. and N. Irel.	26	26	776	584	104	88	2,456	1,636	485	12,452
Greece . . .	0	0	4	18	0	0	29	49	0	192
Hungary . . .	0	0	35	22	0	0	79	60	0	333
Italy . . .	0	0	260	249	0	0	763	679	0	4,039
Latvia . . .	0	0	4	9	0	0	15	18	0	51
Norway . . .	0	0	4	0	0	0	13	2	0	41
Netherlands . . .	0	2	55	82	2	2	134	220	7	860
Poland . . .	2	2	106	110	7	7	335	300	22	1,074
Portugal . . .	—	—	24	20	—	—	90	73	—	434
Sweden . . .	—	—	26	42	—	—	95	119	—	564
Switzerland . . .	0	0	49	26	0	4	110	88	4	505
Czechoslovakia . . .	11	15	179	190	33	37	441	472	137	2,002
Yugoslavia . . .	0	0	0	15	0	0	42	49	0	201
Canada . . .	—	—	75	77	—	—	183	176	—	974
Japan . . .	55	148	926	653	90	231	2,352	2,555	1,041	16,486
Algeria . . .	—	—	—	—	0	0	0	0	4	7
Totals . . .	6,246	6,427	4,629	3,245	14,825	13,640	11,681	9,527	66,350	60,288

Wool. — (Thousand lb.).

COUNTRIES					TWO MONTHS (September 1-October 31)				TWELVE MONTHS (Sept. 1-August 31)	
	1932	1931	1932	1931	1932	1931	1932	1931	1931-32	1931-32
<i>Exporting Countries:</i>										
Irish Free State . .	1,662	1,254	49	88	2,848	2,392	196	165	9,949	948
Hungary . . .	198	370	143	240	231	798	179	306	2,344	1,270
Argentina . . . { a) b)	14,211	9,916	—	—	28,580	15,441	—	—	249,280	—
Chile . . .	963	1,175	—	—	2,233	1,790	—	—	8,098	—
India . . .	3,982	2,998	600	397	93	198	—	—	24,441	—
Syria and Lebanon . .	536	428	448	152	7,006	5,679	1,135	759	35,402	5,020
Algeria . . .	—	—	—	—	1,105	811	800	306	3,935	985
Egypt . . .	—	—	—	—	551	622	229	93	6,856	1,252
Un. of S. Africa . . { a) b)	26,273	10,472	0	0	38,936	11,603	0	0	1,413	4
Australia . . . { a) b)	441	351	0	430	968	472	29	430	298,044	0
New Zealand . . . { a) b)	93,783	100,897	57	18	160,261	145,173	71	29	5,296	1,261
Greece . . .	5,340	6,773	0	0	12,855	10,697	0	0	762,756	2,004
Poland . . .	1,956	814	0	0	3,040	1,585	0	0	58,535	15
Sweden . . .	5,758	979	0	0	9,868	5,190	0	0	177,836	2
<i>Importing Countries:</i>										
Germany . . . { a) b)	357	2,313	8,007	8,933	871	3,549	18,186	15,545	43,314	13
Austria . . .	950	1,455	3,223	2,599	1,552	2,606	5,622	4,299	9,780	241,740
Belgium . . . { a) b)	7	4	1,590	589	15	24	2,222	983	9,681	31,656
Denmark . . .	4,306	1,750	9,945	4,136	7,855	3,001	14,813	8,550	82	11,532
Finland . . .	1,684	2,253	401	381	3,651	4,012	772	551	18,715	116,938
France . . .	51	18	452	386	37	22	613	613	22,465	3,086
Gr. Brit. and N. Irel.	187	181	1,980	282	1,067	309	3,497	325	157	4,409
Italy . . . { a) b)	0	0	331	179	359	309	730	348	2,566	10,483
Norway . . .	2,582	4,129	26,325	13,318	5,278	8,871	40,878	23,702	86	2,762
Netherlands . . . { a) b)	32,679	27,205	38,535	28,431	44,463	33,543	72,285	57,536	45,631	393,099
Poland . . .	79	53	123	176	79	53	243	403	315,628	888,010
Sweden . . .	22	88	3,975	4,519	62	218	11,235	9,149	300	2,094
Switzerland . . .	452	280	1,396	1,204	915	516	2,769	2,612	1,232	145,076
Czechoslovakia . . .	77	53	243	201	95	117	434	353	1,620	14,290
Yugoslavia . . .	317	179	516	430	580	335	827	968	756	2,355
Canada . . .	123	46	838	891	220	66	1,753	1,373	1,933	7,229
United States . . .	101	137	2,714	1,784	207	516	4,422	2,637	739	8,148
Japan . . .	—	—	1,290	1,658	—	—	2,352	2,635	1,687	27,084
Tunis . . .	20	141	1,788	2,044	51	203	2,956	2,586	—	17,745
Totals . . .	200,016	178,221	119,392	101,074	336,813	262,354	210,609	185,323	2,132,299	2,278,009

a) = Wool, greasy; b) = Wool, scoured. — 1) 2) See notes page 871.

COUNTRIES	OCTOBER		FOUR MONTHS (July 1-Oct. 31)		TWELVE MONTHS (July 1-June 30)	COUNTRIES	OCTOBER		FOUR MONTHS (July 1-Oct. 31)		TWELVE MONTHS (July 1-June 30)
	1932	1931	1932	1931	1931-32		1932	1931	1932	1931	1931-32
Coffee. — (Thousand lb.).						Tea. — (Thousand lb.).					
EXPORTS.						EXPORTS.					
Exporting Countries:						Exporting Countries:					
Brazil . . . . .	...	...	135,188	32,117	2,022,263	Ceylon	20,627	16,537	78,333	68,787	245,982
India	12,202	2,094	2,760	2,368	17,926	India	49,708	46,165	186,135	169,642	342,946
Java and Madura .	9,969	4,348	55,656	19,169	51,725	Java and Madura .	11,255	13,239	46,493	49,468	163,312
						Japan	2,903	1,711	14,612	11,100	24,590
Importing Countries:						Importing Countries:					
Germany	90	99	564	791	1,649	Belgium	0	2	4	9	22
Belgium	57	1,096	238	3,269	9,643	Irish Free State .	0	15	7	82	258
France	0	0	4	4	15	France	2	9	4	15	35
Netherlands	1,563	946	5,635	5,964	15,265	Gr. Brit. and N. Irel.	5,102	10,820	28,166	31,665	77,887
Portugal	121	95	456	287	1,270	Netherlands	11	11	37	51	139
Switzerland	57	104	141	229	613	United States	29	31	101	115	474
Canada	7	4	18	15	42	Syria and Lebanon .	0	0	0	2	20
United States	915	608	4,209	5,128	22,593	Algeria . . . . .	...	...	7	7	49
Ceylon	0	0	0	2	11	Union of S. Africa .	...	...	4	18	121
Syria and Lebanon .	0	0	7	2	46	Australia	77	90	234	282	549
Australia	4	9	11	26	55	New Zealand . . . .	...	...	26	13	148
Totals	—	—	—	—	2,143,116	Totals	89,714	88,630	354,163	331,253	856,532
IMPORTS.						IMPORTS.					
Importing Countries:						Importing Countries:					
Germany	26,526	32,501	88,983	105,761	307,608	Germany	1,221	990	3,459	3,353	10,494
Austria	655	1,294	6,019	4,870	16,998	Austria	44	75	966	364	1,131
Belgium	11,524	8,907	40,060	43,868	114,762	Belgium	66	51	190	201	661
Bulgaria	46	71	123	346	1,658	Denmark	99	137	346	428	1,380
Denmark	4,372	4,914	11,640	20,433	66,439	Spain	22	7	90	79	322
Spain	4,094	4,070	13,988	14,312	53,912	Estonia	11	13	22	44	172
Estonia	2	31	24	86	298	Irish Free State .	2,242	3,437	7,238	8,613	25,122
Irish Free State .	40	46	108	134	522	Finland	20	33	64	88	249
Finland	2,901	4,030	11,142	12,941	32,481	France	216	271	884	974	3,419
France	32,913	27,227	127,602	147,851	426,660	Gr. Britain and N. I.	66,066	62,199	215,430	202,797	550,364
Gr. Britain and N. I.	3,023	3,170	12,860	12,575	37,516	Ireland	26	84	146	238	699
Ireland	686	1,219	2,983	4,467	13,010	Greece	71	88	214	249	562
Greece	450	494	2,026	2,264	6,041	Hungary	22	40	57	86	333
Hungary	6,898	8,342	27,862	30,378	93,393	Italy	22	11	49	46	128
Italy	20	46	68	141	375	Latvia	13	18	37	53	119
Latvia	29	40	115	141	445	Lithuania	40	49	137	123	386
Lithuania	2,498	2,754	11,188	12,928	38,189	Norway	8,655	2,725	15,968	10,276	30,836
Norway	8,433	9,343	32,572	36,661	103,379	Netherlands	370	353	1,173	1,380	4,317
Netherlands	1,310	1,435	4,738	5,657	17,185	Poland	40	49	110	225	648
Poland	664	796	2,604	3,252	10,657	Portugal	88	104	267	291	858
Portugal	7,992	11,155	31,048	36,775	107,586	Sweden	176	168	580	602	1,792
Sweden	2,575	3,040	10,007	10,119	34,286	Switzerland	168	428	423	922	1,737
Switzerland	2,359	5,783	8,448	13,750	32,386	Czechoslovakia . .	51	128	168	309	622
Czechoslovakia . .	1,023	1,380	4,749	6,301	17,434	Yugoslavia	3,964	3,120	9,350	8,009	39,031
Yugoslavia	1,953	2,037	7,280	8,494	31,963	Canada	9,354	10,271	33,043	33,394	90,460
Canada	121,901	119,740	393,238	486,511	1,628,986	United States . . .	...	...	990	1,892	5,172
United States . . .	...	...	1,889	2,910	9,308	Chile	20	88	40	183	586
Chile	256	390	833	2,191	3,572	Syria and Lebanon .	93	185	1,008	655	1,504
Ceylon	461	386	1,195	1,662	6,724	Turkey . . . . .	...	...	999	531	10,421
Japan	278	207	705	756	2,324	Algeria . . . . .	...	...	3,481	2	3,457
Syria and Lebanon .	110	977	4,597	3,589	8,841	Egypt	183	311	919	4,793	6,669
Turkey . . . . .	...	...	7,443	7,483	30,532	Tunis . . . . .	...	...	3,034	1	3,384
Algeria . . . . .	...	...	3,040	2,443	15,862	Union of S. Africa .	4,855	3,543	18,047	14,506	44,899
Egypt	229	355	999	1,166	3,190	Australia . . . . .	...	...	2,890	1	3,280
Un. of S. Africa .	...	...	7,551	9,321	26,026	New Zealand . . . .	...	...	...	...	2,522
Tunis	168	342	780	1,202	3,510						
Un. of S. Africa .	...	...	95	130	452						
Australia											
New Zealand											
Exporting Countries:						Exporting Countries:					
India	0	7	110	57	106	India	287	822	2,183	3,192	6,486
						Java and Madura .	...	...	1,828	1	3,285
Totals	246,389	256,529	880,713	1,053,926	3,204,616	Totals	98,505	89,798	325,230	312,302	880,554

1) 2) See notes page 871.

COUNTRIES	OCTOBER		TWELVE MONTHS (Oct. 1-Sept. 30)		TWELVE MONTHS (Oct. 1-Sept. 30)	COUNTRIES	OCTOBER		THREE MONTHS (August 1-Oct. 31)		TWELVE MONTHS (August 1-July 31)
	1932	1931	1931-32	1930-31	1930-31		1932	1931	1932	1931	1931-32
Cacao. — (Thousand lb.).						Total Wheat and Flour *) (Thousand centals).					
EXPORTS.						a) NET EXPORTS.					
<i>Exporting Countries:</i>						<i>Exporting Countries:</i>					
Grenada . . . . .	...	...	9,376	9,905	—	Germany	961	227	1,107	3)	3)
Dominican Republ. . . . .	...	...	35,935	61,395	—	Bulgaria	214	897	498	2,158	6,691
Brazil . . . . .	...	2)	160,027	133,836	—	Spain	3)	0	3)	7	3)
Ecuador . . . . .	...	...	35,689	33,076	—	Hungary	498	2,055	1,775	4,072	10,752
Trinidad . . . . .	...	...	38,442	61,569	—	Lithuania	2	2	7	9	55
Venezuela . . . . .	...	2)	31,204	42,752	—	Poland	3)	104	3)	302	1,929
Ceylon	582	377	9,266	8,360	—	Rumania	2	3,437	37	15,205	22,335
Java and Madura	379	390	3,366	2,073	—	U. S. S. R.	5)	1,929	5)	8,316	31,223
Cameroon . . . . .	...	...	27,315	24,727	—	Yugoslavia	51	930	5)	265	4,572
Ivory Coast . . . . .	...	...	54,578	43,363	—	Canada	25,483	12,796	54,441	31,334	123,625
Gold Coast	37,838	12,540	462,878	486,374	—	United States	2,344	8,054	7,580	20,496	65,566
Nigeria . . . . .	...	...	130,779	115,545	—	Argentina	1,925	3,915	6,288	11,219	83,496
St. Thomas and Prince Is.	1,896	3,840	27,626	26,711	—	Chile . . . . .	...	...	1)	9)	7
Togoland . . . . .	...	...	13,916	16,400	—	India	20	139	179	258	1,118
<i>Importing Countries:</i>						Syria and Lebanon	3)	75	3)	225	3)
Germany	0	0	496	454	—	Turkey	7	71	15	101	922
Belgium	93	49	1,508	809	—	Algeria . . . . .	...	...	1)	2,044	1)
France	60	0	4	22	—	Tunis	463	128	1,660	1,202	3,508
Netherlands	379	1,340	6,740	10,679	—	Australia	4,769	4,528	11,272	15,565	92,453
Czechoslovakia	0	0	0	18	—	Totals	38,694	45,696	91,359	138,529	464,444
United States	745	545	7,011	8,521	—						
Australia	0	31	143	86	—						
Totals	41,972	19,112	1,056,299	1,087,675							
IMPORTS.						b) NET IMPORTS.					
<i>Importing Countries:</i>						<i>Importing Countries:</i>					
Germany	14,394	17,163	175,744	180,001	—	Germany	4)	4)	4)	481	13,913
Austria	525	1,133	13,561	10,684	—	Austria	556	615	1,418	1,504	8,113
Belgium	1,144	1,365	21,388	25,532	—	Belgium	2,599	3,029	5,922	7,696	27,862
Bulgaria	29	22	1,323	774	—	Denmark	719	1,792	2,443	3,596	10,412
Denmark	190	119	7,756	7,685	—	Spain	88	0	3,219	0	3,025
Spain	591	1,027	21,892	22,472	—	Estonia	0	44	0	115	262
Estonia	9	49	452	478	—	Irish Free State	776	1,387	2,787	3,616	11,715
Irish Free State	108	104	1,149	1,786	—	Finland	227	373	701	864	2,555
Finland	7	49	181	220	—	France	1,376	4,215	9,176	11,929	47,419
France	7,851	8,327	91,263	90,116	—	Gr. Brit. and N. Irel.	12,068	17,088	32,285	49,948	143,918
Gr. Brit. and N. Irel.	13,230	9,769	138,407	141,747	—	Greece	1,038	1,318	2,989	3,735	14,204
Greece	179	353	2,844	2,480	—	Italy	293	370	300	1,151	19,974
Hungary	231	335	5,573	5,432	—	Latvia	2	66	15	170	575
Italy	974	981	15,053	16,619	—	Norway	370	551	1,019	1,146	5,090
Latvia	18	88	1,607	1,724	—	Netherlands	1,847	2,200	4,277	5,157	18,680
Lithuania	31	24	615	708	—	Poland	13	4)	9	4)	4)
Norway	71	364	5,033	4,705	—	Portugal	15	44	243	476	1,660
Netherlands	5,706	8,671	92,202	147,201	—	Sweden	247	284	1,021	681	4,096
Poland	1,027	1,131	11,444	12,313	—	Switzerland	5)	1,093	5)	1,574	5)
Sweden	362	622	10,481	9,092	—	Czechoslovakia	95	1,499	549	3,984	14,758
Switzerland	384	825	11,197	25,803	—	Ceylon	51	60	130	141	242
Czechoslovakia	1,625	1,005	21,526	18,237	—	Indo-China	51	37	123	143	518
Yugoslavia	1,259	1,005	16,444	15,371	—	Japan	187	948	278	1,722	12,584
Canada	44,000	18,261	420,143	406,214	—	Java and Madura . . . . .	...	...	1)	201	1)
United States	123	1,041	11,252	7,308	—	Syria and Lebanon	71	4)	4)	223	223
Australia . . . . .	...	...	1,554	1,504	—	Egypt . . . . .	...	...	2)	24	2)
New Zealand . . . . .	...	...	...	...	—	Union of S. Africa . . . . .	...	...	97)	278	1,049
Totals	94,092	74,049	1,101,785	1,155,679	—	New Zealand . . . . .	...	...	1)	412	1)
						Totals	23,782	37,494	72,846	102,953	382,130

*) Flour reduced to grain on the basis of the coefficient: 1,000 centals of flour = 1,333.33 centals of grain.

a) Excess of exports over imports. — b) Excess of imports over exports.

1) Data up to 30 September. — 2) Data up to 31 August. — 3) See Net Imports. — 4) See Net Exports. — 5) Wheat only.

STOCKS

STOCKS (TOTAL AND QUANTITIES FOR SALE) IN FARMERS' HANDS IN GERMANY.

PRODUCTS	% Total stocks : total production				% Quantities intended for sale : total production				% Stocks in elevators: total production 1)	
	15 Nov. 1932	15 Oct. 1932	15 Nov. 1931	15 Nov. 1930	15 Nov. 1932	15 Oct. 1932	15 Nov. 1931	15 Nov. 1930	15 Nov. 1932	15 Oct. 1932
Winter wheat . . .	59.5	67.2	47.4	52.4	49.5	57.1	38.3	42.6	6.2	6.5
Spring wheat . . .	77.3	82.4	74.0	74.9	65.3	70.2	61.7	59.4	5.9	6.7
Winter rye . . .	59.5	68.3	50.5	63.4	33.6	39.4	22.3	35.1	3.4	3.8
Winter barley . . .	34.4	41.3	34.6	34.6	5.7	7.5	6.2	4.9	0.8	0.7
Spring barley . . .	62.2	73.2	66.2	60.3	36.8	45.7	42.0	36.4	0.4	0.5
Oats . . .	78.9	86.7	78.4	81.4	19.2	21.1	18.7	22.5	0.2	0.3
Potatoes . . .	66.8	80.6	65.4	68.7	21.4	30.1	19.9	23.1	0.0	0.1

1) These stocks are the property of farmers but are not on the farms; as they are partly in commercial elevators certain quantities are reckoned twice, the report on stocks in elevators not making any distinction of ownership.
 Authority: Preisberichtsstelle beim Deutschen Landwirtschaftsrat.

STOCKS OF CEREALS IN COMMERCIAL ELEVATORS AND MILLS IN GERMANY 1).

PRODUCTS	Last day of month			Last day of month		
	November 1932	October 1932	September 1932	November 1932	October 1932	September 1932
	1,000 centals			1,000 bushels or barrels		
WHEAT:						
Grain	14,310	14,928	15,214	23,850	24,879	25,356
Flour for bread	2,694	2,811	2,396	1,375	1,434	1,225
TOTAL 2)	17,902	18,675	18,409	29,835	31,125	30,683
RYE:						
Grain	11,409	11,976	13,307	20,373	21,385	23,763
Flour for bread	1,625	1,664	1,495	829	849	763
TOTAL 2)	13,567	14,196	15,300	24,243	25,349	27,324
BARLEY	4,037	3,578	2,994	8,410	7,455	6,237
OATS	1,914	1,614	1,310	5,980	5,043	4,092

1) See note under the corresponding table in the Bulletin for March, on page 218. — 2) Including flour in terms of grain, on the basis of the coefficient: 1,000 centals of flour = 1,333.33 centals of grain (1,000 barrels of flour = 4,355.55 bushels of wheat or 4,584.80 bushels of rye).

QUANTITIES OF CEREALS ON OCEAN PASSAGE WITH FIRST DESTINATION FOR EUROPE.

PRODUCTS	Saturday nearest to 1st of month					Saturday nearest to 1st of month				
	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930
	1,000 centals					1,000 bushels				
Wheat (and flour in terms of wheat) . . .	23,765	19,128	17,794	21,432	27,389	39,608	31,880	29,656	35,720	45,648
Rye	384	326	826	2,443	698	686	583	1,474	4,363	1,140
Barley	1,632	2,652	3,384	3,652	5,724	3,400	5,525	7,050	7,608	11,925
Oats	1,264	976	851	1,222	1,165	3,950	3,050	2,660	3,820	3,640
Maize	16,234	12,547	14,798	25,162	15,173	28,989	22,406	26,426	44,931	27,094

Authority: Broomhall's Corn Trade News.

COMMERCIAL CEREALS IN STORE IN CANADA AND THE UNITED STATES.

SPECIFICATION	Friday or Saturday nearest to 1st of month					Friday or Saturday nearest to 1st of month				
	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Canadian in Canada	142,316	143,661	112,351	101,453	106,200	237,194	239,435	187,252	169,088	177,000
U. S. in Canada	4,200	4,574	5,102	17,648	2,760	7,000	7,623	8,503	29,414	4,600
U. S. in the United States .	105,869	115,128	116,977	141,970	123,971	176,448	191,880	194,961	236,616	206,618
Canad. in the United States.	9,118	8,350	6,592	14,088	18,178	15,196	13,916	10,987	23,480	30,297
Total	261,503	271,713	241,022	275,159	251,109	435,838	452,854	401,703	458,598	418,515
RYE:										
Canadian in Canada	2,671	2,943	2,771	6,833	7,157	4,770	5,256	4,948	12,202	12,780
U. S. in Canada	55	55	55	438	1,171	99	99	99	782	2,090
U. S. in the United States .	4,496	4,752	4,872	5,841	9,617	8,029	8,485	8,700	10,451	17,173
Canad. in the United States	231	281	231	787	364	412	502	412	1,405	651
Total	7,453	8,031	7,929	13,899	18,309	13,310	14,342	14,159	24,820	32,694
BARLEY:										
Canadian in Canada	2,892	2,820	2,777	4,624	14,423	6,024	5,874	5,786	9,633	30,048
U. S. in Canada	10	55	55	12	174	21	114	114	24	363
U. S. in the United States .	4,734	4,503	4,307	3,420	7,026	9,862	8,381	8,973	7,124	14,637
Canad. in the United States .	0	22	13	312	749	0	46	27	649	1,561
Total	7,636	7,400	7,152	8,368	22,372	15,907	15,415	14,900	17,430	46,609
OATS: (1)										
Canadian in Canada	3,099	2,828	2,473	4,616	4,706	9,685	8,836	7,728	14,426	14,704
U. S. in Canada	374	478	520	159	712	1,170	1,495	1,626	496	2,225
U. S. in the United States .	8,795	9,307	9,267	5,812	9,761	27,484	29,084	28,960	18,161	30,504
Canad. in the United States .	0	0	0	10	2	0	0	0	32	7
Total	12,268	12,613	12,260	10,597	15,181	38,339	39,415	38,314	33,115	47,440
MAIZE:										
U. S. in Canada	2,358	1,962	1,576	570	410	4,211	3,503	2,815	1,017	733
Of other origin in Canada .	942	208	143	1,280	832	1,682	371	255	2,286	1,486
U. S. in the United States .	15,193	15,468	10,354	5,490	4,106	27,130	27,621	18,489	9,803	7,332
Total	18,493	17,638	12,073	7,340	5,348	33,023	31,495	21,559	13,106	9,551

1) For oats the bushel is of 32 lbs.

GRAIN AND FLOUR STOCKS AT THE PORTS OF GREAT BRITAIN AND IRELAND 1).

PRODUCTS	First of the month					First of the month				
	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930
	1,000 centals					1,000 bushels				
WHEAT:										
Grain	4,080	4,776	3,792	16,608	7,464	6,800	7,960	6,320	27,680	12,440
Flour as grain	480	528	768	1,104	888	800	880	1,280	1,840	1,480
TOTAL	4,560	5,304	4,560	17,712	8,352	7,600	8,840	7,600	29,520	13,920
Barley	680	760	580	1,100	1,460	1,417	1,583	1,208	2,292	3,042
Oats	304	368	400	432	1,376	950	1,150	1,250	1,350	4,300
Maize	2,544	3,996	3,624	3,840	2,280	4,543	7,029	6,471	6,857	4,071

1) Imported cereals.
Authority: Broomhall's Corn Trade News.

STOCKS OF COTTON ON HAND IN THE UNITED-STATES.

LOCATION	Last day of the month					Last day of the month				
	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930	Nov. 1932	October 1932	Sept. 1932	Nov. 1931	Nov. 1930
	1,000 centals					1,000 bales (counting round as half bales)				
In consuming establishments . . .	7,162	6,226	5,342	7,082	7,569	1,457	1,267	1,087	1,441	1,564
In public storage and at compresses . .	52,526	48,343	39,204	52,620	40,675	10,677	9,827	7,970	10,696	8,398
TOTAL . .	59,688	54,569	44,546	59,702	48,244	12,134	11,094	9,057	12,137	9,962

STOCKS OF COTTON AT BOMBAY AND AT ALEXANDRIA.

PORTS	Thursday nearest to 1st of month					Thursday nearest to 1st of month				
	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930
	1,000 centals					1,000 bales (1 bale = 478 lbs.)				
Bombay 1)	2,001	2,200	2,684	1,452	1,597	419	460	562	304	334
Alexandria	4,137	3,861	3,257	5,522	4,829	865	808	681	1,155	1,010

1) Stocks held by exporters, dealers and mills.

Authorities: East Indian Cotton Ass. and Commission de la Bourse de Minet-el-Bassal.

STOCKS OF COTTON IN EUROPE.

COUNTRIES, PORTS, DESCRIPTIONS	Thursday or Friday nearest to 1st of month					Thursday or Friday nearest to 1st of month				
	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930	Dec. 1932	Nov. 1932	October 1932	Dec. 1931	Dec. 1930
	1,000 centals					1,000 bales (1 bale = 478 lbs.)				
<i>Great Britain:</i>										
American	2,087	1,686	1,752	1,459	1,925	437	353	366	305	403
Argentine, Brazilian, etc. . . .	181	178	171	192	221	38	37	36	40	46
Peruvian, etc. . . .	321	330	315	265	429	67	69	66	56	90
East Indian, etc. . .	212	194	272	527	166	44	40	57	110	35
Egyptian, Sudanese	1,325	1,323	1,483	1,287	1,297	277	277	310	269	271
Other 1)	90	87	112	190	233	19	18	24	40	49
TOTAL	4,216	3,798	4,105	3,920	4,271	882	795	859	820	894
<i>Bremen:</i>										
American	2,240	1,843	1,398	1,366	2,223	469	386	292	286	465
Other	65	58	46	35	42	13	12	10	7	9
TOTAL	2,305	1,901	1,444	1,401	2,265	482	398	302	293	474
<i>Le Havre:</i>										
American	1,104	935	624	821	1,074	231	196	131	172	225
Other	38	47	53	119	126	8	10	11	25	26
TOTAL	1,142	982	677	940	1,200	239	206	142	197	251
<i>Total Continent 2):</i>										
American	4,027	3,395	2,500	2,703	3,532	843	710	523	565	739
Argentine, Brazilian, etc. . . .	29	50	38	57	136	6	10	8	12	39
E. Indian, Australian, etc. . . .	94	70	64	115	182	19	15	14	24	38
Egyptian	111	120	140	126	96	23	25	29	26	20
W. Indian, W. African, E. African, etc. . . .	24	36	36	36	82	5	8	7	8	17
TOTAL	4,285	3,671	2,778	3,037	4,028	896	768	581	635	843

1) Includes: W. Indian, etc., E. African, etc.; W. African, and Australian. — 2) Includes Bremen Havre, and other Continental ports. Authority: Liverpool Cotton Ass.

MONTHLY REVIEW OF PRICES

(All quotations are, unless otherwise, for spots)

PRODUCTS, MARKETS AND DESCRIPTION	16	9	2	25	AVERAGE 1)				
	Dec.	Dec.	Dec.	Nov.	Nov.	Dec.	Dec.	Commercial Season	
	1932	1932	1932	1932	1932	1932	1932	1931-32	1930-31
WHEAT.									
Budapest (a): Tisza region (78 80 kg. p. hl.; pengő p. quintal)	12.75	12.90	12.92	13.00	13.10	13.72	14.16	12.28	15.34
Braña: Good quality (lei p. quintal)	590	605	620	615	630	294	362	305	351
Winnipeg: No. 1 Manitoba (cents p. 60 lbs.)	39 3/8	44	45	46 1/2	46 1/2	60 3/8	55 1/8	59 3/8	64 1/8
Chicago: No. 2 Hard Winter (cents p. 60 lbs.)	46 1/4	47 3/4	n. 46 1/2	45 1/4	n. 45 1/4	56	n. 78 1/4	54 1/4	78
Minneapolis: No. 1 Northern (cents p. 60 lbs.)	47 1/4	47 3/4	47 3/4	47 1/4	48	71 1/8	77 1/8	66 1/8	77 1/8
New-York: No. 2 Hard Winter (cents p. 60 lbs.)	54 1/2	55 7/8	54 7/8	54 1/2	53 7/8	69	90 1/8	66 1/8	n. 91 1/8
Buenos Aires (b): Barletta (80 kg. p. hectol.; pesos paper p. quintal)	7) 5.75	6.00	6.20	6.00	6.12	6.48	6.49	6.68	6.83
Karachi: Karachi white, 2 % barley, 1 1/2 % dirt (rupees p. 656 lbs.)	29-0-0	28-8-0	28-0-0	28-4-0	28-0-0	24-2-0	17-5-6	21-15-9	19-15-2
Berlin: Home grown (Reichsmarks p. quintal)	18.70	19.00	19.30	19.40	19.72	21.34	24.70	23.63	26.00
Hamburg, c. i. f. (Reichsmarks p. quintal):									
No. 2 Manitoba	7.88	8.38	8.30	8.13	8.24	10.00	11.73	10.38	12.65
No. 2 Hard Winter	n. q.	n. q.	n. q.	n. q.	n. q.	9.75	n. q.	n. 9.32	n. 13.00
Barusso 2)	7) 7.28	7) 7.37	7) 7.54	7) 7.41	7) 7.59	8.39	11.44	8.78	11.10
Antwerp (francs p. quintal):									
Home grown	76.00	77.00	77.00	78.00	78.25	76.25	81.75	83.10	95.50
No. 2 Hard Winter, Gulf 3)	74.00	74.00	74.50	75.00	76.00	83.25	105.50	81.75	112.50
Paris: Home-grown, 75-77 kg. (francs p. quintal)	111.75	112.00	111.50	113.75	112.80	163.65	167.10	167.10	175.00
London: Home grown (shillings p. 504 lbs.)	23/-	23/-	23/6	23/6	24/-	28/5	28/5	26/5	27/1
London and Liverpool, c. i. f., parcels, shipping current month (shillings p. 480 lbs.) 4):									
South Russian (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	19) 25/-	21/7	22/3	23/7
No. 3 Manitoba	23/-	24/6	25 1/2	25/3	25/1	28/2	24/1	25/9	25/4
No. 2 Hard Winter	n. q.	n. q.	n. q.	n. q.	n. q.	27/7	27/-	25/3	26/4
White Pacific	n. q.	n. q.	n. q.	n. q.	n. q.	27/-	27/-	26/5	26/7
Rosafé (float) 5)	7) 21/6	7) 23/9	7) 24/-	7) 23/9	7) 23/7	25/8	22/1	23/8	23/5
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	25/1	25/1	n. q.	27/-
Australian	24/-	25/-	25/6	25/9	26/-	28/6	26/7	25/9	25/7
Milan (a): Home-grown, soft (lire p. quintal)	110.00	110.00	110.00	110.00	109.50	102.85	103.00	106.20	109.10
Genoa c. i. f. (shillings p. metric ton): La Plata 6)	7) n. 1.74	7) n. 1.78	7) n. 1.81	7) n. 1.77	7) n. 1.80	n. q.	n. 110/-	n. 2.21	110/-
RYE.									
Budapest (a): Home-grown (pengő p. quintal)	5.95	6.30	6.45	6.60	6.77	14.42	8.89	12.24	10.79
Berlin: Home-grown (Reichsmarks p. quintal)	15.30	15.30	15.40	15.50	15.62	19.00	15.49	19.00	17.18
Hamburg, c. i. f. (Reichsmarks p. quintal):									
Russian (72-73 kg. p. hl.)	n. q.	n. q.	n. q.	n. q.	6.12	n. q.	n. q.	n. 9.50	n. q.
La Plata (74-75 kg. p. hl.)	7) 6.18	7) 6.26	7) 6.35	7) 6.35	7) 6.40	8.19	n. 7.45	8.36	n. 7.65
Minneapolis: No. 2 (cents p. 56 lbs.)	31	31 1/4	30	30	30 3/4	46 1/4	44 3/4	42 1/4	42 1/4
Groningen (c): Home-grown (florins p. quintal)	3.95	3.95	3.85	3.80	3.83	4.65	4.67	5.13	4.45
BARLEY.									
Braña: Average quality (lei p. quintal)	193	190	185	195	202	278	205	263	232
Winnipeg: No. 4 Western (cents p. 48 lbs.)	24 1/8	25 1/8	26 1/4	28 1/4	28 3/4	35 1/4	22 1/4	34 7/8	26 1/4
Chicago: Feeding (cents p. 48 lbs.)	23	25	27	32	30 1/2	45 1/4	46 1/4	43 1/4	43 1/4
Berlin: Home-grown fodder (Reichsmarks per quintal)	16.15	16.35	16.45	16.45	16.50	15.05	19.16	16.41	19.57
Antwerp: Danubian (francs p. quintal)	56.00	57.00	56.50	58.00	56.00	79.00	68.00	77.25	73.25
London: English malting (shillings p. 448 lbs.)	40/-	40/-	40/-	40/-	40/-	40/5	37/10	39/4	35/8
London and Liverpool, c. i. f., parcels (shillings per 400 lbs.):									
Danubian 2 %	18/-	18/3	18 1/2	18/6	18/6	n. q.	14/3	n. q.	15/2
Russian (Azoff-Black sea)	n. q.	n. q.	n. q.	n. q.	n. q.	21/9	n. 13/9	18/11	14/3
Canadian Western, N. 3)	19/-	19 1/4	20/3	19/6	19/6	24/10	15/9	20/11	15/11
Californian malting (shillings p. 448 lbs.)	23/6	24/-	24/-	24/-	23/3	40/11	25/6	33/4	27/8
Groningen (c): Home grown winter (fl. p. quintal)	4.82	4.87	4.87	4.87	4.84	5.77	4.74	5.87	4.97

a) Saturday prices. — b) Thursday prices. — c) Prices of preceding Tuesday.

1) The monthly averages are based on weekly quotations, the annual averages on the monthly. — 2) August-Dec. 1930: 78 Kg. p. hl.; Jan. 1931 - Jan. 1932: 79 Kg. p. hl.; afterwards, 80 Kg. p. hl. — 3) From July 1931: No. 1 Hard Winter, Gulf. — 4) German on sample: 16 Dec. n. q.; 9 Dec.: 24/-; 2 Dec.: n. q.; 25 Nov.: 23/6; Nov. average: 24/-; — 5) August-Nov. 1930: 62 1/2 lbs. per bushel; Dec. 1930 - Feb. 1931: 63 1/4 lbs.; March - Nov. 1931: 63 lbs.; Dec. 1931: 63 1/2 lbs.; afterwards, 64 lbs. — 6) From April 1932: dollars per quintal — 7) New crop. — 8) No. 1 Hard Winter. — 9) Jan.-Feb. shipment. — 10) Winter Russian. — 11) 71-72 Kg. p. hl.

PRODUCTS, MARKETS AND DESCRIPTION	AVERAGE 1)							
	16 Dec. 1932	9 Dec. 1932	2 Dec. 1932	25 Nov. 1932	Nov. 1932	Dec. 1932	Dec. 1932	Commercial Season
								1931-32 1930-31
OATS.								
Braila: Good quality (lei p. quintal)	180	170	170	170	192	328	187	285 247
Winnipeg: No. 2 White (cents per 34 lbs.)	19 7/8	21 3/4	22 3/8	23	24	29 7/8	26 5/8	31 3/8 30
Chicago: No. 2 White (cents per 32 lbs.)	16 7/8	18	16 1/4	16 1/2	17	25 7/8	34 3/8	24 7/8 32 7/8
Buenos Aires (a): Current quality (pesos paper p. quintal)	3.85	4.00	4.10	4.15	4.40	4.91	3.17	5.33 3.58
Berlin: Home grown (Reichsmarks p. quintal) . .	11.65	12.15	12.55	12.65	13.17	13.77	14.26	15.10 16.17
Paris: Home grown, black and other (francs p. quintal)	82.50	85.15	86.25	87.75	87.25	94.25	73.70	101.75 81.00
London: Home grown white (shillings p. 336 lbs.)	18/9	18/9	18/9	18/9	18/9	20/6	17/6	21/3 18/4
London and Liverpool c. i. f., parcels (shillings p. 320 lbs.):								
Danubian (39-40 lbs.)	13/6	13/9	14/-	14/-	14/-	n. q.	n. q.	n. q. 12/1
Plate (f. a. g.)	12/1 1/2	12/6	12/6	12/9	13/6	16/2	10/1	14/5 10/9
Chilian Tawny	n. q.	n. q.	n. q.	n. q.	n. q.	19/1	n. 12/-	n. 16/- 12/-
Milan (b): spot (lire p. quintal):								
Home grown	67.50	67.50	67.50	67.50	67.50	75.30	74.00	73.60 73.95
Foreign imported	60.00	62.50	62.50	62.50	62.60	68.00	55.75	65.20 60.40
MAIZE.								
Braila: Danubian (lei p. quintal)	153	154	160	153	161	158	214	187 210
Chicago: No. 2 Mixed American (cents p. 56 lbs.)	24	24 1/4	24 1/4	25 1/4	26 1/2	38 1/4	70 1/2	34 58 1/4
Buenos Aires (a): Yellow Plate (pesos paper p. quintal)	4.02	3.95	4.05	3.97	4.26	4.30	3.95	4.63 3.82
Antwerp, spot (francs p. quintal):								
Bessarabian	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	73.00	n. q. 71.25
Argentine Cinquantino	64.00	63.00	65.00	62.50	61.75	57.25	101.25	63.30 81.00
Yellow Plate	50.00	51.00	50.00	52.00	52.25	52.50	73.00	57.20 65.00
London and Liverpool, parcels, c. i. f. (shillings p. 480 lbs.) 2):								
Danubian	17/7 1/2	18/1 1/2	18/3	17/7 1/2	18/4	18/7	n. 18/11	n. 19/3 17/4
Yellow Plate	17/7 1/2	17/10 1/2	17/10 1/2	17/6	17/10	16/9	16/10	18/2 15/6
No. 2 White African	18/3	18/3	18/6	18/6	18/7	21/2	n. q.	n. 20/11 18/1
Milan (b): Home grown (lire p. quintal)	59.00	60.00	60.00	58.00	57.25	61.75	50.25	68.70 51.90
RICE (CLEANED).								
Milan (b): Maratelli (lire p. quintal)	139.00	139.00	141.00	143.50	143.50	139.25	111.00	117.35 152.15
Rangoon: No. 2 Burma (rupees p. 7500 lbs.) . .	215	n. q.	220	227	229	260	260	249 3/4 393 3/4
Saigon (Indo-chinese piastres p. quintal):								
No. 1 Round white (25 % broken) . . . . .	...	...	...	...	7	6.12	8.56	6.73 11.36
No. 2 Japan (40 % broken) . . . . .	...	...	...	...	8	5.60	8.08	6.20 10.89
London (a): c. i. f. (shillings p. 112 lbs.):								
Spanish Belloch, No. 3 oiled	14/1 1/2	14/1 1/2	14/3	14/-	14/-	13/7	12/4	11/11 14/1
Italian good, No. 6 oiled	14/3	14/3	14/-	n. q.	n. 12/9	n. q.	12/3	13/7 14/11
American Blue Rose	16/9	17/-	16/9	16/6	16/5	22/3	18/3	18/7 21/9
Burma, No. 2	7/1	7/1	7/1	7/1 1/2	7/3	8/10	8/2	7/11 10/11
Saigon, No. 1	7/4 1/2	7/3	7/4 1/2	7/4 1/2	7/4	9/9	9/-	8/1 11/6
Siam, Garden, No. 1 3)	7/7 1/2	7/9	7/10 1/2	7/8	8/4	n. q.	10/-	9/5 14/-
Tokio: Various qualities (yens p. koku)	22.60	22.50	22.50	n. q.	19.17	18.57	18.00	18.46 25.57
LINSRED.								
Buenos Aires (a): Current quality (pesos paper p. quintal)	9.05	8.85	8.90	8.85	8.98	9.87	11.45	10.82 17.19
Antwerp: Plate (francs p. quintal)	101.00	102.50	101.50	102.75	100.95	109.50	200.00	146.00 284.25
London, c. i. f. (£ p. long ton):								
La Plata (delivery Hull) 4)	8-15-0	8-16-3	9-0-0	8-16-3	8-15-0	9-4-3	9-7-2	8-14-1 15-0-5
Bombay bold	11-10-0	11-10-0	11-8-9	11-10-0	11-11-10	11-11-6	13-0-7	11-9-6 17-14-4
Duluth: No. 1 Northern (cents p. 56 lbs.) . . .	106	105 1/4	106	102 3/4	105 1/4	138	159 1/4	148 236

a) Thursday prices. — b) Saturday prices.

1) The monthly averages are based on weekly quotations, the annual averages on the monthly. — 2) Yellow Russian: 16 Dec.: n. q.; 9 Dec.: n. q.; 2 Dec.: n. q.; 25 Nov.: 18/-; Nov. average: 18/-; White Russian: 16 Dec.: n. q.; 9 Dec.: n. q.; 2 Dec.: 18/6; 25 Nov.: 18/-; Nov. average: 18/2. — 3) From January 1932; Siam Special. — 4) In place of Hull: La Plata. — 5) New crop. — 6) January shipment. — 7) 18 Nov.: 4.28; 11 Nov.: n. q.; 4 Nov.: 4.32; 28 Oct.: 4.45; 21 Oct.: 4.70; Oct. average: 4.67. — 8) 18 Nov.: 4.12; 11 Nov.: n. q.; 4 Nov.: 4.15; 28 Oct.: 4.24; 21 Oct.: 4.40; Oct. average: 4.39. — 9) January-February shipment. — 10) February-March shipment.

PRODUCTS, MARKETS AND DESCRIPTION	16	9	2	25	AVERAGE 1)					Commercial	
	Dec.	Dec.	Dec.	Nov.	Nov.	Dec.	Dec.	Dec.		Season	
	1932	1932	1932	1932	1932	1932	1932	1930		1931-32	1930-31
COTTONSEED.											
Alexandria: Sakellaridis (piastres per ardeb) . . .	68.4	68.8	70.5	66.5	64.1	56.7	53.0			60.0	52.2
London: Sakellaridis (delivery Hull: 1' p. 1. ton) 2).	7-1-3	7-8-9	7-11-3	n.6-16-3	n.6-12-6	5-17-9	5-14-4			6-3-7	5-12-6
COTTON.											
New Orleans: Middling (cents per lb.)	5.95	5.81	5.74	5.81	6.16	6.15	9.60	6.20	10.07		
New York: Middling (cents per lb.)	6.00	5.90	5.80	5.90	6.29	6.34	9.96	6.35	10.38		
Bombay: M. g. Broach f. g. (rupees per 784 lbs.) .	200	191	202	205	210	196	176 3/4	181 1/2	191 1/4		
Alexandria (talaris per kantari):											
Sakellaridis f. g. f.	13.05	12.25	13.15	13.60	13.92	12.60	14.12	12.17	17.12		
Ashmuni (Upper Egypt) f. g. f.	11.85	11.30	12.35	12.60	12.77	9.89	10.75	9.73	12.00		
Bremen: Middling (U. S. cents per lb.)	7.08	6.78	7.01	7.16	7.39	7.29	11.13	7.44	11.59		
M. g. Broach fully good (pence per lb.)	n. 4.65	n. 4.75	n. 4.90	n. 5.00	n. 5.06	n. 5.20	n. 4.47	n. 4.48	n. 4.63		
Le Havre: Middling, Gulf (francs per 50 kg.) . . .	220.00	214.00	217.00	215.00	222.50	210.00	335.00	216.00	349.00		
Liverpool (pence per lb.):											
Middling fair	n. 6.41	n. 6.19	n. 6.45	n. 6.59	n. 6.66	n. 6.30	n. 6.63	n. 5.85	n. 6.93		
Middling	5.26	5.04	5.30	5.44	5.51	5.25	5.44	4.79	5.72		
São Paulo, good fair	n. 5.51	n. 5.29	n. 5.55	n. 5.69	n. 5.76	5.37	5.73	n. 4.98	5.91		
M. g. Broach, fully good	n. 4.85	n. 4.64	n. 4.89	n. 5.04	n. 5.09	n. 4.83	n. 4.00	n. 4.34	n. 4.25		
Sakellaridis, fully good fair	7.13	6.77	7.09	7.56	7.75	7.16	8.07	6.76	9.08		
BUTTER.											
Copenhagen (a) Danish (Crs. p. quintal).	184.00	182.00	180.00	188.00	189.50	222.00	223.00	209.00	245.00		
Leeuwarden, Commission for the Dutch butter											
quotations: (florins per kg.)	0.75	0.73	0.75	0.78	0.81	1.18	1.54	1.34	1.66		
Maastricht, auction (b): Dutch (florins p. kg.) . .	1.58	1.60	1.60	1.57	1.56	1.19	1.58	1.38	1.70		
Hamburg, auction (c): Schleswig-Holstein butter,											
with quality mark (R. M. per 50 kg.)	113.19	112.32	115.47	119.58	121.76	115.95	114.71	131.22	146.67		
Kempten (d): Allgäu butter (Pfennige p. half kg.) 3).	110	101	110	110	106 3/4	97	122 1/2	110	128		
London (d) (shillings p. cwt.):											
British, blended	121/4	121/4	121/4	121/4	126 -	135/4	133/4	140.4	158/8		
Danish	126/-	125/-	127/-	128/-	126/-	137/2	140/10	133/4	153/6		
Irish creamery, salted	n. q.	n. q.	n. q.	106/-	107/6	n. 118/-	141/-	119.3	134/10		
Dutch	120/-	120/-	120/-	120/-	119/6	143/-	141/-	132.1	151/11		
Argentine	94/-	94/-	95/-	96/-	97/6	106/10	114/7	117.7	135/10		
Siberian 4)	89/-	89/-	91/-	91/-	94/-	n. q.	106/-	n. q.	131/6		
Australian, salted	90/-	92/-	93/-	95/-	99/3	109/10	114/7	116/8	135/9		
New Zealand, salted	94/-	96/-	98/-	99/-	106/6	111/10	116/2	119/11	137.8		
CHEESE.											
Milan (lire per quintal):											
Parmigiano-Reggiano, 1st quality of last year's											
production	987.00	987.00	987.00	987.00	980.75	975.00	1,100.00	1,103.00	1,160.00		
Green Gorgonzola, mature, choice	615.00	620.00	645.00	655.00	667.50	546.00	664.00	616.00	671.00		
Rome: Roman pecorino, choice (lire p. quintal) .	1,275.00	1,275.00	1,275.00	1,275.00	1,275.00	1,175.00	1,115.00	1,121.00	1,207.00		
Alkmaar: Edam 40 + (40 % butterfat, with the											
country's cheesemark, factory cheese, small:											
florins p. 50 kg.)	25.50	25.00	26.00	28.00	29.25	22.12	35.87	32.63	40.83		
Gouda: Gouda 45 + (whole milk cheese, with											
the country's cheesemark, home made; florins											
p. 50 kg.)	31.00	32.50	33.00	32.50	33.00	30.60	40.25	37.93	45.56		
Kempten (d): (Pfennige per half kg.):											
Soft cheese, green (20 % butterfat)	19 1/2	19 1/2	19 1/2	19 1/2	21 3/4	23 1/2	28 1/2	24	27		
Emmenthal from the Allgäu (whole milk											
cheese) 1st quality	74 1/2	74 1/2	74 1/2	74 1/2	76 3/4	88 7/8	91	97 1/2	97		
London (d) (shillings per cwt.):											
English Cheddar	106/-	106/-	106/-	106/-	106/-	105/2	95/10	99/10	103/4		
Canadian	75/-	75/-	73/-	73/-	72/6	72/7	81/-	75/9	93/11		
New Zealand	64/-	65/-	64/6	63/6	65/-	67/4	65/4	63/2	82/2		
Liverpool (d): Engl. Cheshire, ungraded (sh. p. cwt.)	91/-	91/-	95/8	95/8	101/6	139/6	91/7	94/3	97/5		

a) Thursday prices. — b) Prices of preceding Tuesday. — c) Wednesday prices. — d) Average prices for weeks ending on preceding Wednesday.

1) The monthly averages are based on weekly quotations, the annual averages on the monthly. — 2) In place of Hull: Sakellaridis. — 3) The method of quotation has been changed as from January 1932: actual prices are generally 3 Pf. higher than according to the former system. — 4) From September 1932: Russian. — 5) Average price for all qualities.

THE TREND OF PRICES OF AGRICULTURAL PRODUCTS DURING NOVEMBER 1932

In the following pages the index-numbers of prices of agricultural products and other price-indices of interest to the farmer are given as published in the different countries. The indices collected together have been obtained according to different methods and criteria. A detailed account of the items included in each series and the system of construction of the index-numbers may be found in the volume published especially for this purpose by the Institute, entitled "Index-numbers of prices of agricultural products and other price-indices of interest to the farmer". We refer the reader to this volume for an exact interpretation of the significance of the different series of data.

Owing to the substantial divergence which often exists in the value and significance of the data available, much care is advisable in their utilisation from an international point of view. For this reason it has been considered opportune to reproduce all the data in their original form only, without attempting formally to unite them. The latter process, by a comparison of often heterogeneous data, might easily lead to the drawing of erroneous relations and conclusions.

But in addition to the original data, and subject to the above comments, a summary table is given below.

COUNTRIES	Percentage variations in the index-numbers for November, 1932			
	compared with those for October, 1932		compared with those for November, 1931	
	Index-numbers of prices of agricultural products	General index-numbers of prices	Index-numbers of prices of agricultural products	General index-numbers of prices
Germany	— 0.2	— 0.4	— 10.9	— 11.9
England and Wales	+ 1.0	+ 0.1	— 9.8	— 6.1
Argentina	— 6.6	— —	— 20.4	— —
Canada	— 1.6	— 0.3	— 20.8	— 8.2
Estonia	+ 6.9	— —	— 9.4	— —
United States (a)	— 3.6	— —	— 24.0	— —
Finland (b)	— 0.5	— 0.8	— 6.5	— 6.4
Hungary	— ... 8.0	+ ... 2.5	— ... 22.5	— ... 17.2
Italy	+ 0.2	— 0.8	— 2.7	— 8.2
New Zealand	— 4.3	— —	— 10.5	— —
Netherlands	— 1.9	— 0.0	— 12.1	— 13.5
Poland	+ 1.7	— 0.5	— 20.7	— 14.4
Yugoslavia (c)	+ 2.8	+ 1.3	(c) — 15.8	— 5.7
	(d) + 6.3		(d) — 2.2	

a) Bureau of Agricultural Economics. — b) Bureau of Labor. — c) Products of the soil. — d) Animal products.

INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS AND OF COMMODITIES BOUGHT BY THE FARMER *

COUNTRIES AND CLASSIFICATIONS	Nov.	Oct.	Sept.	August	July	June	Nov.	Nov.	Year	
	1932	1932	1932	1932	1932	1932	1931	1930	1931	1930
GERMANY (Statistisches Reichsamt) 1913 = 100.										
Foodstuffs of vegetable origin	99.1	100.3	104.2	118.6	116.6	118.3	115.6	110.9	119.3	115.3
Livestock	63.5	66.2	67.5	71.5	66.7	65.4	71.4	108.2	83.0	112.4
Livestock products	103.4	98.7	94.8	90.3	89.4	87.3	107.4	131.3	108.4	121.7
Feeding stuffs	84.4	85.2	77.1	90.5	94.2	93.8	98.7	87.9	101.9	93.2
Total agricultural products	87.8	88.0	89.0	91.0	92.5	92.1	98.5	112.0	103.8	113.1
Fertilizers 1)	69.8	69.4	69.2	68.5	67.7	71.5	72.1	80.4	76.5	82.4
Agricultural dead stock	113.6	113.9	114.2	115.1	115.5	116.0	128.6	137.4	130.7	139.4
Finished manufactures (« Gebrauchs- güter »)	112.5	113.0	113.8	114.3	116.0	117.3	134.2	151.6	140.1	159.3
General index-number	93.9	94.3	95.1	95.4	95.9	96.2	106.6	120.1	110.9	124.6
ENGLAND AND WALES (Ministry of Agriculture) Average of corresponding months 1911-13 = 100.										
Agricultural products	101	100	104	105	106	111	112	129	120	134
Feeding stuffs	90	89	92	97	94	94	97	78	83	96
Fertilizers	88	87	87	89	89	91	90	100	96	101
General index-number 2)	91.6	91.5	94.6	94.9	92.8	90.6	97.6	104.2	96.5	114.1
ARGENTINA 3) (Banco de la Nación Argentina) 1926 = 100.										
Cereals and linseed	55.5	60.0	64.1	62.9	60.4	59.8	65.6	59.8	55.8	82.3
Meat	60.9	65.3	68.3	70.1	71.5	73.7	91.3	109.2	94.3	109.2
Hides and skins	54.7	54.6	61.7	52.8	47.7	40.4	66.3	70.4	64.5	71.6
Wool	40.7	45.2	48.0	43.1	43.0	39.6	58.0	57.3	61.2	67.4
Dairy products	53.7	53.7	56.2	57.3	57.3	57.3	70.7	72.6	74.5	82.4
Forest products	64.9	65.2	62.5	61.6	63.3	66.3	81.7	108.7	99.3	107.9
Total agricultural products	55.1	59.0	62.7	61.1	59.2	58.3	69.2	69.3	63.8	85.9
CANADA 3) (Internal Trade Branch of the Dominion Bureau of Statistics) 1926 = 100.										
Field products (grain, etc.)	36.6	36.8	38.9	41.7	41.8	40.6	46.0	48.6	44.6	70.0
Animals and animal products	56.9	58.4	60.2	59.3	58.3	59.3	72.1	95.9	77.6	102.9
Total Canadian farm products	42.2	44.9	46.9	48.3	48.0	47.6	55.8	66.3	57.0	82.3
Fertilizers	72.3	72.3	72.0	72.4	72.0	72.0	75.5	89.3	83.0	88.2
Consumer's goods (other than foodstuffs, etc)	78.3	78.6	78.9	78.6	78.5	78.6	79.8	84.9	80.5	86.8
General index-number	64.8	65.0	66.9	66.8	66.6	66.6	70.6	79.5	72.2	86.6
ESTONIA (Central Bureau of Statistics) 1913 = 100.										
Commodities imported 4)	112	112	112	113	115	114	124	130	129	118
Commodities exported	63	57	54	51	53	53	70	89	76	103
Agricultural products imported and export- ed 4)	77	72	70	67	70	69	85	102	91	108

* For an explanation of the method of calculation of the index-numbers, reference should be made to the Institute's publication "Index numbers of Prices of Agricultural Products and other Price-indices of interest to the Farmer" (Rome, 1930), as well as to pages 77 to 79 of the "Crop Report" of January 1932 and to page 517 of the "Crop Report" of July 1932.

1) From July 1932 new series — 2) Calculated by the "Statist", reduced to base-year 1913 = 100. — 3) Average data for the year 1931 are provisional. — 4) From January 1932 the price of rye is excluded from the calculations.

COUNTRIES AND CLASSIFICATIONS	Nov.	Oct.	Sept.	August	July	June	Nov.	Nov.	Year	
	1932	1932	1932	1932	1932	1932	1931	1930	1931	1930
UNITED STATES (Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals	34	36	41	43	42	44	57	80	63	100
Fruits and vegetables	57	59	68	79	83	82	68	114	98	158
Meat animals	57	60	67	69	72	57	76	118	93	134
Dairy products	68	68	67	65	63	62	95	124	94	123
Poultry and poultry products	115	102	84	75	65	59	123	146	96	126
Cotton and cottonseed	47	51	57	51	41	37	50	80	63	102
Total agricultural products	54	56	59	59	57	52	71	103	80	117
Commodities purchased by farmers 1)	106	107	106	108	109	111	123	142	129	146
Agricultural wages 1)	—	84	—	—	—	—	113	150	116	152
UNITED STATES (Bureau of Labor) 1926 = 100.										
Grains	33.2	34.4	37.4	38.2	36.7	37.7	51.3	64.0	53.0	58.3
Livestock and poultry	41.9	45.0	51.2	52.8	54.1	46.7	55.7	77.7	63.9	89.2
Other farm products	53.9	52.1	52.1	50.8	48.4	48.2	63.1	85.4	69.2	91.1
Total farm products	46.7	46.9	49.1	49.1	47.9	45.7	58.7	79.3	64.8	88.3
Agricultural implements	84.6	84.7	84.9	84.9	84.9	84.9	92.1	94.9	94.0	95.1
Fertilizer materials	63.5	63.4	63.6	66.4	66.8	68.0	70.1	82.1	76.8	85.6
Mixed fertilizers	65.6	66.5	66.9	68.3	68.8	69.0	77.7	91.1	82.0	93.6
Cattle feed	40.8	42.7	45.9	47.4	42.2	42.1	59.8	83.0	62.7	99.7
Non-agricultural commodities	67.5	68.1	68.7	68.5	68.0	67.8	71.0	80.9	73.0	85.9
General index-number	63.9	64.4	65.3	65.2	64.5	63.9	68.3	80.4	71.1	86.3
FINLAND (Central Bureau of Statistics) 1926 = 100.										
Cereals . . . . .	...	89	87	86	88	88	81	71	77	76
Potatoes . . . . .	...	68	68	71	93	73	49	51	68	76
Fodder . . . . .	...	67	65	66	67	70	62	58	63	62
Meat . . . . .	...	56	61	64	65	63	51	70	64	88
Dairy products . . . . .	...	76	74	71	73	68	88	79	76	84
Total agricultural products . . . . .	...	72	72	72	73	71	72	74	72	82
General index-number . . . . .	...	90	90	89	89	87	87	87	84	90
HUNGARY (Central Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products	69	75	80	80	87	90	89	80	—	—
General index-number	82	80	90	89	94	96	99	92	—	—
ITALY (Consiglio Provinciale dell'Economia Corporativa di Milano) 1913 = 100.										
National agricultural products	327.61	326.81	328.66	322.08	328.78	345.69	336.84	373.77	343.11	413.39
General index-number	301.89	304.33	306.70	300.06	299.93	304.22	328.74	379.03	341.57	411.04
NEW ZEALAND (Census and Statistics Office) Average 1909-13 = 100.										
Dairy produce	94.5	102.4	96.6	95.5	89.4	86.5	102.5	—	98.9	120.6
Meat	100.3	95.5	100.0	109.0	106.6	113.3	118.5	—	130.1	171.2
Wool	60.0	66.8	66.4	57.8	55.5	58.4	66.3	—	67.9	100.3
Other pastoral produce	62.0	63.1	53.4	57.9	59.0	50.9	69.1	—	76.7	124.3
All pastoral and dairy produce	84.2	88.1	86.0	85.8	82.2	82.7	94.1	—	96.5	127.9
Agricultural produce	95.6	95.4	95.7	83.1	84.8	105.5	105.4	—	115.5	126.7
All pastoral, dairy and agricultural produce	84.5	88.3	86.2	85.7	82.3	83.4	94.4	—	97.0	127.8

1) 1910-14 = 100. — 2) October.

COUNTRIES AND CLASSIFICATIONS	Nov. 1932	Oct. 1932	Sept. 1932	August 1932	July 1932	June 1932	Nov. 1931	Nov. 1930	Year	
									1931	1930
NORWAY 1)										
(Kgl. Selskap for Norges Vel)										
Average 1909-14 = 100.										
Cereals	116	116	118	118	124	125	110	101	125	112
Potatoes	72	75	73	86	144	150	119	155	130	150
Pork	95	100	94	87	90	84	88	102	96	86
Other meat	101	105	109	115	117	108	121	192	218	138
Eggs	142	120	109	85	78	67	132	179	108	96
Dairy products	131	131	132	125	123	122	133	158	156	129
Concentrated feeding stuffs	104	104	106	107	105	104	102	115	121	103
Maize	91	92	95	94	90	87	81	97	108	82
Fertilizers	87	81	89	89	89	89	86	101	105	90
NETHERLANDS										
(Directie van den Landbouw)										
Average 1924-25 to 1928-29 = 100.										
Products of the soil	43	44	46	49	51	49	59	61	a) 58	a) 72
Animal products	55	55	51	49	52	53	57	77	a) 56	a) 77
Total agricultural products	51	52	50	49	52	52	58	73	a) 57	a) 76
Agricultural wages	83	83	83	83	83	83	95	100	a) 93	a) 99
General index-number 3)	52.1	52.1	51.4	50.7	51.4	52.8	60.2	74.4	77.8	65.7
POLAND 4)										
(Central Bureau of Statistics)										
1917 = 100.										
Products of the soil	40.8	41.8	42.7	43.7	47.3	54.6	59.1	47.6	56.7	53.9
Products of agricultural industry	52.7	53.8	55.2	59.1	61.2	65.7	68.7	65.4	78.4	65.9
Total products of plant origin	46.7	47.8	48.9	51.2	54.2	60.3	64.2	56.1	66.9	60.0
Animals	39.2	41.4	43.7	45.6	45.6	46.9	43.7	72.7	81.6	55.8
Dairy products	67.1	53.5	55.8	47.7	50.8	45.9	76.9	97.0	74.9	68.0
Total products of animal origin	50.1	46.7	49.0	46.8	48.2	46.8	56.4	84.0	78.6	60.8
Total agricultural products	47.8	47.0	48.6	48.9	51.2	53.7	60.3	66.2	71.3	59.7
Fertilizers	107.6	112.9	112.9	112.9	112.9	112.9	118.5	124.7	126.3	120.2
Industrial products	67.3	68.8	69.8	69.7	67.7	68.1	74.5	88.9	94.2	79.4
General index-number	58.4	58.8	60.1	60.2	60.4	61.8	68.2	78.6	83.8	70.5
YUGOSLAVIA										
(National Bank										
of the Kingdom of Yugoslavia)										
1926 = 100.										
Products of the soil	59.7	58.1	57.7	64.0	73.2	72.2	70.9	71.4	96.7	74.3
Animal products	60.2	58.5	56.8	53.6	57.2	55.0	63.6	95.1	97.7	72.2
Industrial products	67.6	67.5	64.0	63.4	63.4	63.4	68.7	74.8	80.2	71.4
General index-number	64.7	63.9	61.8	62.6	65.6	64.9	68.6	79.2	88.8	72.9

1) The agricultural years refer to the period April 1-March 31. — 2) Agricultural year July 1-June 30. — 3) Calculated by the Central Statistical Bureau of the Netherlands, reduced to the base 1925-1929 = 100. — 4) Average data for the year 1931 are provisional.

RATES OF FREIGHT

(Rates for full cargoes)

VOYAGES	16	9	2	25	AVERAGE					
	Dec.	Dec.	Dec.	Nov.	Nov.	Dec.	Dec.	Commercial		
	1932	1932	1932	1932	1932	1931	1930	Season		
								1931-32	1930-31	
SHIPMENTS OF WHEAT AND MAIZE.										
Danube to Antwerp/Hamburg	(shill. per long ton)	n. q.	14/1 1/2	13/-	14/-	14/1 1/2	n.15/4	14/7	14/6	13/11
Black Sea to Antwerp/Hamburg	(shill. per long ton)	10/1 1/2	10/-	10/-	9/9	10/3	10/11	10/10 1/2	10/10	10/10
St. John to Liverpool 1)		2/-	2/-	2/-	n. q.	n. q.	1/8	1/6	1/7	1/6
Port Churchill to United Kingdom		n. q.	n. q.	n. q.	n. q.	n. q.	—	—	—	—
Montreal to United Kingdom	(shill. per 480 lbs.)	n. q.	n. q.	2/6	2/3	2/-	n. q.	n. q.	2) 0.08	1/10
Gulf to United Kingdom		1) 2/-	1) 2/-	1) 2/-	1) 2/-	1) 2/7	1) 2/2	1) 2/2	0.26	2/3
New York to Liverpool 1)		1/6	1/6	1/6	1/6	1/6	1/7	1/6	1/8	1/6
Northern Range to U. K./Continent		n. q.	n.0.06	n. q.	n. q.	n. q.	n. q.	1/7 1/2	0.09	1/9
North Pacific to United Kingdom (sh. per long ton)		23/-	23/-	22/3	n. q.	n.22/6	23/10	23/-	n. 22/2	22/3
Vancouver to Yokohama 1) (gold \$ persh. ton).		2.00	2.00	2.00	2.00	2.00	2/30	2.50	2.30	2.72
La Plata Down River 2) to U. K./Continent		n.16/3	16/3	n.16/3	n. q.	n.12/9	16/2	17/4 1/2	16/-	16/4
La Plata Up River 3) to U. K./Continent	(shill. per long ton)	18/-	17/6	17/6	17/-	15/9	17/8	19/1 1/2	17/6	18/-
Karachi to U. K./Continent 4)		n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	19/9	n. q.	19/3
Western Australia to U. K./Continent		27/6	27/6	n. q.	n. q.	n.26/6	29/1	30/4 1/2	26/-	29/8
SHIPMENTS OF RICE.										
								1931	1930	
Saigon to Europe	(shill. per long ton)	n. q.	n. q.	n.27/6	n. q.	n. q.	1) 25/6	1) n.19/-	24/3	n. 18/11
Burma to U. K./Continent		n. q.	n. q.	n. q.	n. q.	n. q.	26/4	n.19/3	23/9	n. 17/8

1) Rates for parcels by liners. — 2) "Down River" includes the ports of Buenos Aires and La Plata. — 3) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa-Fé and Paraná) are subject to an extra rate of freight. — 4) The original data being quoted in "scale terms", 10% is added to arrive at rates per long ton. — 5) Freight in gold \$ per 100 lbs. (in the case of a loss of 25% in the value of the shilling, 10 \$ c. per 100 lbs. are equal to sh. 2/8 per quarter).

EXCHANGE RATES

PERCENTAGE OF PREMIUM + OR OF LOSS (—) OF DIFFERENT CURRENCIES IN RESPECT OF THEIR RITY WITH THE DOLLAR 1)

COUNTRY	Exchange	16 Dec. 1932	9 Dec. 1932	2 Dec. 1932	25 Nov. 1932
Germany	Berlin	— 0.4	— 0.4	— 0.4	— 0.4
Argentina	New York	— 39.3	— 39.3	— 39.3	— 39.3
Belgium	Brussels	— 0.5	— 0.4	— 0.3	— 0.4
Canada	New York	— 12.5	— 14.5	— 15.0	— 15.5
Denmark	Copenhagen	— 36.3	— 37.8	— 37.3	— 37.6
Egypt	London	— 32.1	— 33.7	— 34.1	— 33.9
Great Britain		—	—	—	—
France	Paris	— 0.4	— 0.4	— 0.4	— 0.4
Indo-China	Budapest	— 0.0	— 0.0	— 0.0	— 0.0
Hungary		— 31.5	— 33.0	— 33.5	— 33.3
India	London	— 2.7	— 2.5	— 3.5	— 2.8
Italy	Milan	— 57.6	— 58.5	— 59.1	— 57.4
Japan	New York	— 0.0	— 0.1	— 0.0	— 0.0
Netherlands	Amsterdam	— 1.2	n. q.	— 1.2	n. q.
Rumania	New York	—	—	—	—

1) The percentage represents the premium or the loss as far as possible on the national exchange. With the aid of the table of reciprocal prices of the currencies considered, given at the next page of this Crop Report, and the percentages indicated above, it is possible to obtain the reciprocal prices of the different currencies at the rates to which the quotations of the Monthly Crop Report refer.

Prof. ALESSANDRO BRIZI, Segretario generale dell'Istituto, Direttore responsabile.

23-XII-1932.

MONTHLY BULLETIN

OF

AGRICULTURAL SCIENCE AND PRACTICE

GENERAL AGRONOMY AND CROPS OF TEMPERATE REGIONS

Miscellanea.

I. — GENERAL AGRONOMY.

Soil Science.

RESEARCH ON THE CATALYTIC POWER OF SOILS. — By catalytic power is meant the power, varying in degree in different soils, of decomposing hydrogen peroxide with liberation of oxygen. At the Central Agricultural Experiment Station of Bucharest M. C. F. RADU has studied the various factors governing the catalytic power and has obtained the following results:—

(1) The power is dependent in the first place on the surface of contact offered by the colloidal complex of the soil; in general the greater this surface is, that is to say, the finer and more dispersed are the humus and clay, the greater is the catalytic power.

(2) On the other hand it is reasonable to suppose that this power is also correlated with the number of microorganisms in the soil. The writer's analyses in fact showed the existence of such a relationship, more qualitative than quantitative, and showed also that the slower the catalytic action of the soil the more certain is the participation of microorganisms, and *vice versa*.

(3) The catalytic power depends to a large extent on the soil type, which must be taken into account in interpreting the analytical results.

(4) No relationship could be found between the pH of exchange acidity and the catalytic power of the soil.

(*Die Landwirtschaftlichen Versuchs-Stationen*, Berlin, 1931, Band 112, Heft 1-2, pp. 45-54).

DETERMINATION OF SOIL REQUIREMENTS IN POTASH AND PHOSPHORIC ACID BY LABORATORY METHODS IN HUNGARY. — This question has been studied by Dr. E. BECKER at the Soil Science Laboratory of the Royal Hungarian Institute of Chemistry at Budapest, using the methods of LEMMERMANN (soil extraction with a 1 % citric acid solution), of SIGMOND (extraction with 1 % nitric acid) and of NEUBAUER (analysis of germinating rye seedlings).

It was found that acid soils are in general less well supplied with nutritive principles than soils which are saturated with bases or calcareous soils.

The pH of the soil and its lime content are also important as regards the results given by the different methods. The methods of LEMMERMANN and NEUBAUER cannot therefore be recommended for highly calcareous soils.

The SIGMOND method, used not only for P_2O_5 but also for K_2O , gave similar results to the NEUBAUER method. On an average 100 mg of K_2O found with the NEUBAUER method correspond to 150 mg indicated by the SIGMOND method.

(*Mezőgazdasági Kutatások* (Agricultural Research), Budapest 1931, IV. Évfolyam 10. Szám, p. 370-381).

INFLUENCE OF LIME ON THE GROWTH OF *Aspergillus* IN SOIL POTASH TESTS. — Prof. H. NIKLAS, the inventor of this ingenious method, has in collaboration with G. VILSMAYER and H. POSCHENRIEDER made interesting observations leading to the following conclusions:—

(1) Lime (already occurring in the soil as carbonate or added to the *Aspergillus* cultures as carbonate or citrate) definitely affects the *Aspergillus* growth.

(2) Its influence depends on its degree of solubility.

(3) The weight of *Aspergillus* mycelium obtained in tests of calcareous soils is in consequence of the nutritive action of the lime generally too high and tends thus to give an erroneous estimate of the potash requirements of such soils. This important fact should be taken into account in interpreting results obtained by the NIKLAS method.

(*Zeitschrift für Pflanzenernährung, Düngung und Bodenkunde*, Berlin 1932, 24. Band, Heft 3-4, p. 167-178).

EFFECT OF TEMPERATURE UPON NITROGEN FIXATION BY *Azotobacter*. — The *Azotobacter* group is widely distributed. The literature of the subject contains an abundance of citations of its presence throughout the United States, in Java, Japan, India, Denmark, etc.

When the great climatic variations between these countries are considered the ability of *Azotobacter* to meet environmental conditions is remarkable. Thus various investigators have been led to study the optimum conditions for nitrogen fixation by these organisms. But as regards optimum temperatures the opinions of different workers are widely divergent. In view of this fact R. A. GREENE undertook a study of the subject at the University of Arizona (U. S. A.) on a number of soil samples from the principal agricultural sections of the State. The results obtained were as follows:—

Azotobacter was found to be present in over 90 % of the soils examined and the physiological activity of the six recognised species was determined at different temperatures. These species arranged in decreasing order of their nitrogen fixing power are:— *A. agilis*, *A. vinelandii*, *A. beijerinckii*, *A. chroococcum*, *A. vitreus* and *A. woodstownii*. The two last were not active fixers at any temperatures.

The cultures of *Azotobacter* isolated from Arizona soils fixed nitrogen in increasing quantities from 18° C. up to a maximum of 30° for *A. vinelandii*, *A. vitreus* and *A. woodstownii* and of 32.5° for *A. agilis*, *A. beijerinckii* and *A. chroococcum*. Above these temperatures the fixation diminished progressively to 40° C., at which temperature it was still appreciable and became negligible at 42.5°.

These temperatures considerably exceed those which have been observed in Europe. The writer concludes that the *Azotobacter* flora of Arizona soils has been subjected to high temperatures for a long period of time and has become adapted to the environment and consequently they are able to fix nitrogen at higher temperatures than cultures of *Azotobacter* which come from soils of more temperate regions.

(*Soil Science*, Baltimore 1932, Vol. XXXIII, No. 3, pp. 153-161).

T. B.

Fertilisers and Fertilising.

WORLD PRODUCTION OF SYNTHETIC AMMONIA BY THE CASALE PROCESS. — At the close of 1931 there were operating throughout the world 28 Casale ammonia plants with a total daily capacity of 1777 metric tons of anhydrous NH_3 . The Casale Company is directing its attention to perfecting the process with a view to further reducing production costs.

The following table shows the distribution of the factories and the daily capacity of production per country:

Country	Number of factories	Daily capacity in metric tons NH_3
Germany	1	150
Belgium	4	260
Canada	1	8
Spain	1	15
United States	1	106
France	10	396
Chosen (China)	1	480
Italy	2	57
Japan	2	162
Russia	1	48
Switzerland	1	23
Jugoslavia	1	72

(The American Fertilizer, Philadelphia, 1932, Vol. 76, No. 8, p. 34).

AQUA AMMONIA AS A NITROGEN FERTILISER. — Attempts to use aqua ammonia as a nitrogen fertiliser have until comparatively recently been confined largely to the use of ammonia liquors obtained as by-product of gas manufacture (see this *Bulletin* 1930, No. 3, p. 96). These attempts have met with indifferent success. In some cases beneficial results have been secured, in others toxic effects on vegetation produced by associated by-products have discouraged the use of the liquors.

Recently interest in the possibility of using aqua ammonia as a direct source of fertiliser nitrogen has been revived because of the increase in the world's supply of fixed nitrogen, most of which is fixed as ammonia. It is a question of considerable economic importance because uncombined ammonia is the cheapest form of fixed nitrogen.

For these reasons work was undertaken by A. B. BEAUMONT and G. J. LARSINOS at the Massachusetts Experiment Station to determine some of the conditions under which aqua ammonia can be used as a fertiliser and its availability in comparison with other nitrogen fertilisers.

First an experiment on the effect of aqua ammonia on *germination* was carried out, using ammonium hydrate with a specific gravity of 0.9 and containing 23.46 % nitrogen. This solution was used at the rates of 30, 60 and 90 lbs of N per acre and was added to the soil in such quantities of water as to bring the soils up to 50 % of their water-holding capacity. Seeds of maize, oats, tobacco, red clover, timothy and lettuce were planted 1-7-14 days after application of the hydrate.

In a second experiment the effect of concentration of hydrate on *germination* and *stand* was studied. Hydrate equivalent to 30, 60 and 90 lbs of N per acre was used in concentrations made by diluting the concentrated hydrate 5-10-20 times.

Next a series of *vegetative* experiments were conducted for the purpose of determining the effect of N in aqua ammonia on the growth and composition of maize, tobacco, oats, red clover, timothy and strawberry in comparison with two of the most common inorganic nitrogen fertilisers, sodium nitrate and ammonium sulphate.

The main results were as follows:—

(1) Aqua ammonia applied to tilled soils at rates varying from 30-120 lbs N per acre did not impair germination or stand of maize, oats, tobacco, red clover, timothy

or lettuce. Leaves of grass were "burned" by surface application of aqua ammonia diluted 5 and 10 times, but the injury was confined to the portion of the plant above ground and was temporary.

(2) Seeds of the above crops were planted as soon as 5 hours after application of 30, 60, 90 and 120 lbs of N per acre in aqua ammonia in dilutions of 5, 10 and 20, without injuring germination and stand.

(3) As a carrier of fertiliser nitrogen, aqua ammonia proved to be about 70 % as effective as ammonium sulphate and sodium nitrate in both pot and field experiments, except in the case of red clover, which was apparently able to fix enough atmospheric nitrogen for its needs.

(4) The reason for the low efficiency of aqua ammonia cannot satisfactorily be explained on the basis of volatilisation of ammonia, nitrification, soil reaction or texture. Fixation of the ammonium ion by the soil offers a possible explanation which should be investigated.

(*The American Fertilizer*, Philadelphia, 1932,) Vol. 76, No. 9, pp. 9-10, 28, 30).

INFLUENCE OF PHOSPHATES ON THE PHOSPHORIC ACID CONTENT OF THE PLANT. — It is now a well-known fact that in parts of South Africa, Australia, New Zealand and elsewhere the soil is so poor in phosphoric acid that the forage it produces is deficient in the P_2O_5 required for bone formation and stock fed on it develops deficiency diseases unless supplied with a phosphate supplementary ration (bone meal, etc.). In England and France the best fattening pastures are richer in phosphates than the inferior ones.

Is it possible to increase the P_2O_5 content of forage by applying phosphate dressings? Research in New Zealand and the United States has already proved that it is possible. Further studies have been undertaken by BLAIR and PRINCE at the New Jersey Agricultural Experiment Station to determine by means of pot and field experiments with wheat, barley, oats and rye (grain and straw), maize (grain and forage), timothy hay, soybean hay, rape and potatoes, whether applications of superphosphate over a number of years (up to 32) had increased the P_2O_5 content of the plants. The following were the main results obtained:—

The soils used in the experiments varied in P_2O_5 content from 0.1 to 0.8 % but the P_2O_5 content of the soil evidently had little or no influence of the P_2O_5 content of the crop, since soybeans grown on loam containing 0.8 % P_2O_5 contained no more phosphoric acid than did those grown on loam containing about 0.1 % of P_2O_5 .

Light applications of super-phosphate (100-250 lbs per acre) did not, in most cases, influence the P_2O_5 content of the crop. With heavier applications (500-1000 lbs per acre) there was usually some increase in the P_2O_5 content of the dry matter. In some cases the increase was as much as 40 %.

In the case of potatoes, however, increasing the amount of super-phosphate applied seemed to have no influence on the P_2O_5 content of the crop.

In mixed herbage the P_2O_5 content was increased by phosphate treatment. However, attention is called to the fact that such increases may be due to changes in the type of vegetation which the phosphate treatment causes rather than actual increase in a specific plant.

In comparison with the changes that may be wrought in the nitrogen content of plants by the application of nitrogenous fertilisers, the changes in phosphorus content produced by phosphate treatments are relatively small. There may however undoubtedly be conditions in which it would be profitable to apply large quantities of super-phosphate for the purpose of increasing the P_2O_5 content of the crops.

(*Journal of Agricultural Research*, Washington 1932, Vol. 44, No. 7, pp. 579-590).

CANCER AND CHEMICAL FERTILISERS. — In Northern France a number of doctors are of the opinion that cancerous affections have been increasing of recent years and the question is raised whether the abundant use of chemical fertilisers, particularly of nitrate of potash, may perhaps be a factor in the increase. The connexion may seem strange but is justified by the suspicion raised by potash salts for some time in cancer experimental research.

A series of studies on this question have been carried out by Dr. MAIRE AMERO, author of a doctorate thesis on the *Rôle des métaux dans la pathogénie des cancers* (Paris, 1929, published by Marcel Vigne). He put forward the following questions for solution:

(1) If it can be proved that potash is a factor in producing cancer, can a potash-rich food be accused of favouring the development of cases of cancer?

(2) If so, is the application of potash fertilisers to plants used for human food capable of modifying the composition of the food to such an extent that potash fertilisers may be regarded as a cause of cancer?

It had already been observed by the writer that the radioactivity of potassium may play an important rôle in cell division in cancerous growths: the greater the K content of the cancerous tissues the more the malignity of the tumour increases, and *vice versa*. This together with the fact that our foods contain K would seem to point to a possible malignant action of the K contained in foodstuffs. It is however very difficult to *prove* the harmful action of a food too rich in potash and even if it could be proved it would not necessarily follow that potash manures are the cause of the trouble, for it has yet to be proved that such fertilisers modify the mineral composition of foodstuffs (cf. above, on the influence of phosphates on crop plants).

After a careful study of this side of the question the following conclusions were drawn:—

(1) As regards the potash content of cultivated plants there are greater differences between species and varieties than those which can be attributed to potash fertilising, the latter being often insignificant though genuinely existing.

(2) A considerable portion of potash may be removed in the cooking of vegetables and thus annul any possible effects of fertiliser.

(3) The potash content of bread is influenced more by the variety of the wheat and the degree of milling of the flour than by application of fertilisers to the land.

(4) It would be well to emphasise the fact that chemical fertilisers affect the mineral composition of plant tissues very little, in opposition to the opinion current in medical circles.

(5) It would appear difficult to decide in favour of a cancer producing action of potash fertilisers; the question is still too full of unknown quantities for such a view to be retained in the face of the observed facts.

(6) Research on the subject should however be continued over a number of years before a definite opinion can be formed.

(*Annales agronomiques*, Nouvelle Série, 1^{re} année, No. 6, p. 793-817).

II. — CROPS OF TEMPERATE REGIONS.

On the production of chlorophyll in roots exposed to light. — There is an interesting article on this subject by M. R. J. GANTHERET in the *Comptes rendus des séances de l'Académie des Sciences*, No. 17, 1932. Roots, with the exception of aerial roots, are known to be incapable of forming chlorophyll, but in the course of some experiments on the culture of detached roots of barley the writer observed by chance a green coloration of the roots. He therefore investigated the conditions under which the green

colour may be produced by growing the roots in various culture media. The colour generally begins in the oldest parts and is localised at the base of the rootlets. Later other green points appear in the younger parts and finally the chlorophyll extends to the extremities of the roots. Microscopic examination of the roots shows that the chlorophyll is not distributed uniformly but is arranged in two symmetrical bands, and that the root is seldom green throughout its whole length, the pigment being absent in some regions. Large, distinctly green, chloroplasts were observed which seemed to be confined to the cortical parenchyma; the piliferous layer was always free from chloroplasts, while the cells of the layer immediately above the endodermis contained most.

This greening of barley roots placed in the light did not appear to be exceptional as it was observed also in roots of lupin and radish.

Thus these experiments show that roots of barley are capable of producing chlorophyll when placed in the light. This phenomenon, the cause of which is not yet determined, occurs only in old roots, is more readily produced in detached than in intact roots and seems to be favoured by the presence of sugar in the culture medium. It seems to be indicated therefore that it may be caused by a certain concentration of sugar which is undoubtedly necessary in the formation of the chlorophyll molecule.

POSITION OF THE TILLERING NODE AND FROST RESISTANCE. — The *Annales Agronomiques* for March-April 1932 contain a study on this subject by M. R. FRIEDBERG. A number of writers have sought a correlation between frost resistance in cereals and certain external morphological characters such as the surface, colour and downiness of the leaves, size of stomata and tillering faculty, and in particular between the depth of the tillering node of a variety and its winter hardiness.

Experiments of the writer showed that the varieties regarded as resistant and fairly resistant all show a deeper tillering node than the susceptible varieties.

There would thus appear to be a certain correlation between a low tendency to elongation of the rhizome, i. e., a deeply situated tillering node, and frost resistance. Such a correlation seems reasonable since the deeper the tillering node the less will be the risk of damage to the growing point by frost. The current opinion that the tillering node of wheat varieties is formed at a uniform distance from the soil surface is erroneous. For a given variety the depth of the tillering node increases with the depth of planting; at an equal planting level different wheat varieties form their tillering node at different depths. The position of the node is a varietal character and is influenced by environmental conditions, particularly by the light during the early development of the plant. The tendency to produce a tiller from the coleoptyl, which is also a varietal character, allows of recovery after the growing point has been destroyed by frost, which explains how it is that varieties such as "Goldendrop", although susceptible to frost, recover better than other varieties of equal susceptibility but seldom developing tillers from the coleoptyl.

A case of unilateral inheritance in wheat. — Pollination of the hybrid barbless wheat K3 of Schribaux with pollen from barbed Rieti wheat gave 18 plants, of which 17 had characters intermediate between the two parents and 1 reproduced completely and without variation the characters of Rieti wheat. The Rieti characters were retained fully during 3 successive generations.

A similar case of total absorption of the characters of the male parent by the female parent, showing the occasional dominating influence of the male, was recorded by MILLARDET in the strawberry under the name of 'false hybrids', was verified by SOLMS-LAUBACH in *Oenothera*, and again by MILLARDET in vines. But these cases were of cross-breeding between two species often botanically far apart. The case reported

above is on the other hand of two varieties of the same species, *Triticum vulgare*, the female parent being already a hybrid variety. It is an exception to the famous law of Mendel which is now a rule rather than a law of heredity.

(P. VIALA, *Comptes rendus de l'Académie d'Agriculture de France*, 10 février 1932).

RELATIONSHIP BETWEEN THE GROWTH OF VARIOUS PARTS OF THE SEEDLING OF THE MELON AND THE QUANTITY OF RESERVE MATERIALS AVAILABLE TO THE EMBRYO. — P. CHOUARD and G. TEISSIER have determined quantitatively the effect of removing part of the cotyledons of a non-albuminous seed on the growth of the seedling. The seed of *Cucumis Melo* was used and it was found that in seedlings grown from sectioned seeds the order and chronology of the phenomenon are exactly the same as in normal plants, but the dimensions reached by the different parts of the plant are reduced in proportion to the amount cut from the seed. The average final length of the hypocotyl is proportional to the weight of the seed after cutting, and the same applies to the weight of the root, so that at the end of growth the relationships between the different parts of the plant are the same as in the control plants.

(*Comptes rendus de l'Académie des Sciences*, Paris, 1932, tome 194, No. 17).

CONTRIBUTION TO THE STUDY OF THE PHENOMENON OF THE "VÉRAISON". — When the variation in the sugar and acid contents in the developing grape is followed by analysis up to maturity the increase in both is found to be at first slow and steady, then there comes a sudden enrichment in sugar and a fall in acidity, the "véraison", after which the sugar continues increasing slowly. The sudden increase in sugars cannot be attributed to more intense assimilation and it is reasonable to suppose they come from reserves previously accumulated in the plant.

Experiments carried out to determine what part of the plant contributes its reserves in this way showed that of the increase in the content of saccharifiable materials and sugars in the whole of the organs in which this increase has been found, 88 % goes to the grapes and 12 % to the roots. The other parts of the vine contributed to the sugar increase in the following proportions:— trunk and woody parts 42 %, herbaceous shoots 31 %, leaf blades 23 %, petioles and grape stalks 4 %. The interesting fact is thus the participation of the trunk and branches in the "véraison" and the non-participation of the root.

(P. VIALA, L. MOREAU and VINET, *Comptes rendus de l'Académie d'Agriculture de France*, 10 février 1932).

D. K.

TROPICAL AND SUBTROPICAL AGRICULTURE

Tropical and Subtropical Agriculture in the Province of Salta, Argentina.

A summary is given below of an interesting report by MR. MIGUEL J. MINTZER of the Experiment Station of Salta, transmitted by MR. CARLOS GIROLA.

The province of Salta may be divided into four different agricultural regions. The first corresponds to the Departments of Oran and Campo Santo where sugar cane is universally cultivated and the tropical forests (Department of Oran) and tropical tree fruits (Campo Santo) are exploited. The second is an arid subtropical region extending over the north-eastern part of the province,

known as "Chaco Salteño". The third zone comprises the valley of Lerma, which is the best cultivated in the province. The only subtropical crop grown is tobacco, the rest being crops of temperate regions. Intensive stock-breeding has also been carried on in this valley but unfortunately it has been seriously affected by the stopping of the export trade with Chile. The fourth zone extends over the south and east of the province. Owing to the high altitude of the greater part of this zone mainly crops of temperate climates are grown. Subtropical crops find suitable conditions only in the Departments of Rosario, Frontera and Meton. Thus it may be said that in the province of Salta there are really only two zones where tropical and subtropical crops are grown, namely, the Departments of Oran and Campo Santo and the Lerma Valley.

I. — TROPICAL AGRICULTURE IN THE DEPARTMENT OF ORAN. — Oran is particularly famed for its forest trees (oak, cedars, tecoma, *Avellaneda* Speg., *Myroxylon peruiferum* L.) growing in a special phyto-geographical zone.

According to the latest studies of L. HAUMAN this zone belongs to the geological formation known as "Tucumian-Bolivian". This formation occurs also as outcrops in the Lerma valley surrounded by other formations named *monte*, so that the existence of the Tucumian-Bolivian zone is not dependent solely on climatic but also on ecological factors.

The presence of a tropical vegetation in the ravines of the Lerma valley at an altitude of over 1500 m. above sea level is of considerable importance for the future development of tropical agriculture in the province of Salta, in that it shows that all the sufficiently healthy regions of the valley could be settled by Europeans. Planters would be able to grow such tropical crops as the cherimoyer (*Anona Cherimola*), mango, papaw, avocado, banana and all kinds of citrus.

The previously prosperous forestry is now completely decadent. This fact is attributed to the importation of European timbers which are sold cheaply and so prevent the indigenous tropical timbers from obtaining a profitable market; further, the costs of exploiting the forests in Oran are high and the rail transport rates are practically prohibitive. The high cost of working the forests is due to the valuable timber being nearly exhausted and it is thus necessary to go from place to place to find suitable trees. The primitive methods used also can only result in the rapid disappearance of the few remaining stands of rare species.

Sugar cane cultivation is also well developed in this zone. The whole production is utilised by the two factories, the larger of which is at Tabacal (Oran) and the other in the Department of Campo Santo.

The plantations extend over 6000 hectares and give an annual yield of 360,600,000 kg of cane. They are divided into lots of varying sizes. Each lot is under the management of an administrator who is directly responsible to the central administration.

The variety grown is the "Java". Cropping begins in May and ends in October. The harvest workers are creoles from the Lerma and Calchaqui valleys and nomad Indians; 3000 to 4000 of the latter are employed each year.

The Indians are recruited by beaters who keep on friendly terms with the "Caciques" or tribal chiefs. The Indians do not change their way of living while working; they bring their families and eat meat, maize and fish, observing the same customs as in their forests. They have borrowed from civilisation only the habit of drinking large quantities of alcohol. They work by piece-work, not by the day. If the work is finished the Indian receives his pay as well as his rations, if not he gets only his rations. The cacique, captain ("Capitanejo") and interpreter are not expected to do manual work and are paid at double the rate of the other Indians.

As a general rule it is very difficult to accustom these nomad Indians to regular work; they frequently abandon the work to return to their fishing and hunting. The Indian labour is thus very uncertain. All attempts to introduce sedentary habits among these people have been in vain. They are able to work only for a short period in winter. When the summer or the rainy season returns and wild fruits such as carobs are in plenty, no human force will keep them from their forests. Only the Cherignano Indians take at all readily to civilisation.

Attempts have been made in the Department of Oran to establish coffee and hevea plantations, but have not prospered owing to the small returns to be obtained.

II. — TROPICAL CROPS IN THE DEPARTMENT OF CAMPO SANTO. — The average altitude of this Department is between 600 and 750 metres above sea level; it is considered to be most suitable for the cultivation of tropical crops.

There is a large sugar factory with extensive dependent cane plantations managed similarly to the tobacco estates. Early vegetables are also grown such as tomatoes and pimento for export in June and July to Buenos Aires and to other large towns in the winter. The growers are generally farmers who rent by the year artificially irrigated land at a rate of 200 *pesos* per hectare. According to the season a hectare of tomatoes gives a gross profit of 2000 to 3000 *pesos*. These market crops require intensive cultivation, which is carried out by the farmer's family and skilled daily labourers.

Speculation and the middleman swallow a large part of the profits from these crops, so a cooperative society has been formed to avoid this state of affairs.

The Department of Campo Santo is a region particularly well adapted for the production of tropical fruits such as the cherimoyer, avocado, papaw, mango, all kinds of citrus and other fruits.

These fruits are marketed on a small scale in the large towns but the consumption is less than it should be owing to lack of advertising.

Some years ago rice was grown in the Guemes district but now the acreage under rice has greatly diminished.

III. — SUBTROPICAL CROPS IN THE LERMA VALLEY. — The chief crop in the Lerma valley is tobacco. The annual production of tobacco in the valley is 3 million kg and is increasing every year.

There are four grades of tobacco:—

- Grade 1: Golden tobacco ("rubio");
- » 2: Light tobacco ("claro");
- » 3: 1st selection tobacco;
- » 4: 2nd selection tobacco.

The industry requires Lerma tobacco to contain 65 % of the "rubio" and "claro" grades, 30 % of first selection and 5 % of second selection. It is difficult to obtain the percentage of "rubio" and "claro" because it depends on the good management of the crop.

The factor causing the "rubio" colour of the tobacco is physiological and inherited in accordance with the Mendelian laws. It is due to the presence of a particularly large quantity of xanthophyll in the chlorophyll. The selection of "rubio" tobacco seed is thus based on the xanthophyll content of the leaves; the golden colour of the leaf is a direct function of the xanthophyll content.

At the Puerto de Diaz Experimental Station trials have been carried out to improve the harvesting methods. As a result of the experiments it is thought that with such improvements in picking and by selection of golden varieties it will be easy to obtain the necessary percentage of "rubio" tobacco.

The tobacco is grown on an intensive system with artificial irrigation. A large amount of labour is thus required. The yield per hectare reaches an average of 1500 kg. In consequence of the comparatively good prices still obtained the cultivation of golden tobacco offers fair prospects.

The other subtropical crops of the Lerma valley remaining to be mentioned are cotton and tree fruits. The cotton grown is a long staple Peruvian variety.

Castor oil is also a satisfactory crop. The plant grows wild in this region.

Miscellanea.

Coconut.

OBSERVATIONS ON COCONUT CROPS IN MALAYA. — Coconuts planted in alluvial soil with good management should produce approximately 5 piculs of copra per acre in the eighth year — an amount which should cover all expenditure with normal commodity prices. Full mature yields should be obtained from the twelfth year after planting and profitable yields should be maintained for at least 30 years. There is a definite "transitional" period in production about the 10th — 11th years.

Interplanting with rubber definitely retards the rate of development of coconuts and seriously affects cropping.

During the period of full productivity wide variations in annual yields due to seasonal and climatic factors may be expected. (A. C. SMITH, *Malayan Agricultural Journal*, Vol. XX, No. 3, Kuala Lumpur, 1932).

Pineapples.

A NEW METHOD OF PINEAPPLE PROPAGATION. — The pineapple plant, preferably before the formation of the fruit stem, is stripped of all leaves except the last six or so which form the young shoot. The rhizome and aerial stem, when freed from roots and scales, is then cut into clean cross-sections not more than $\frac{1}{5}$ in. thick. The

sections, which carry 3 to 4 more or less dormant buds, are put into a 2-5 % solution of potassium permanganate for about 10 minutes, then drained and planted. Germination of the dormant buds takes place within a week or a fortnight, according to temperature and variety. When the buds have formed shoots each section is lifted, with care to retain any embryo root system, and is cut into 3 triangular portions, each with its own bud. The sections are then again dipped in the permananate solution, replanted and watered with a solution of ammonium sulphate. (*Journal of the Jamaica Agricultural Society*, Vol. XXXVI, No. 3, Kingston, 1932).

PINEAPPLE CULTURE IN THE PHILIPPINES. — The introduction of pineapples into the Philippines probably took place earlier than is recorded. In 1911 the Bureau of Agriculture introduced the Smooth Cayenne variety from Hawaii. There are now 3 varieties grown: (1) The native or naturalised variety which has a small fruit weighing 0.2-1.9 kg. with numerous eyes. The fruit is fibrous, sub-acid, not juicy and irritates the mucous membrane of the mouth. Flesh pale yellowish in colour. This variety is a vigorous and hardy grower. (2) Hawaiian Smooth Cayenne variety. The fruits weigh 0.75-6 kg. It does not irritate the mouth. The pulp is not fibrous but compact, juicy, sweet and yellowish. This variety is however not tolerant of adverse conditions and reproduces itself rather slowly. (3) Queen variety. The fruits are smaller than those of the preceding variety, but the plants are hardier and produce a great number of suckers and so spread rapidly.

The location of pineapple plantations is determined by irrigation possibilities.

Pineapple planting materials are of 5 descriptions:— ratoons, which are plants developing from the main stem below the soil; suckers, which develop from the leaf axils; slips, which develop on the fruit stalk; crowns, on the apex of the fruits; crown slips, which grow beneath and around the crown.

Harvesting generally takes place 18 to 20 months after planting (suckers 14-16 months, crowns 16-18 months, slips 2 years).

The plantations are in general renewed after 3 years.

Plants showing light red or light green leaves require fertiliser. The necessary elements are nitrogen, phosphorus and potash. (ELAYDA A., *Philippine Journal of Agriculture*, Manila, 1931, Vol. II, No. 4).

Vine.

RESPIRATION AND OTHER METABOLIC ACTIVITIES IN THE GRAPE VINE. — Experiments carried out in India on the respiration rates of grapes of "Jaishi" and "Tur" varieties show that the berries respired actively during the early stages of their growth but the intensity of respiration slowed down as the berries advanced in age. Accumulation of sugars seems to retard respiratory activity. A significant coefficient of correlation was found between sugars and respiratory activity in the Jaishi variety.

With detached grape bunches the rate of respiration was found to be the same and to decrease as the process of ripening progressed.

Study of the respiration of berries during night time has not shown any noticeable difference; lower temperature seems to be responsible for the slight fall in respiratory activity.

Reducing sugars show a steady increase with the ripening process, the maximum corresponding with complete maturity.

Total titrable acids go on increasing for about four or five weeks and then begin to fall.

Nitrogenous contents show a decline until the 47th day.

Water insoluble residue remains practically constant throughout the life-cycle of the berries.

Specific gravity of the grape juice keeps a close pace with the increase of sugars.

Cellulose content remains constant throughout the life-cycle. (JAI CHAND LUTHERA and INDAR SINGH CHIMA, *Indian Journal of Agricultural Science*, Calcutta, 1931, Vol. I, Part VI).

Cover Crops.

A NEW COVER CROP PLANT, *Desmodium ovalifolium*. — This leguminous plant was introduced a few years ago at the Experiment Station of Phu-ho (Tonkin). It has established itself on different soils and in different conditions on the tea and coffee plots at the Station and has given satisfactory growth everywhere. It excels all the creeping plants so far tried on the granite and schist soils of Middle Tonkin for preventing erosion and improving the physical state of the ground.

D. ovalifolium grows wild in Cambodia, Cochin China, Laos and Annam and occurs also in Malaya and Borneo. It is a shrub spreading and rooting at the base. Germination is in general good but the seedlings are delicate, developing slowly and exacting as to soil and climatic conditions. Growth becomes vigorous after a month and a half. The foliage is dense and evergreen and forms a perfect protection for the soil. The plant grows as well in shade as in light; it prefers cool, permeable alluvial soils.

Propagation by seed is possible but the safest method is by cuttings. Slips should be taken from the first year's growth and planted during the rainy season.

The ground must be kept clean until the cover is obtained; afterwards two hoeings a year are sufficient, the first in September to reduce the growth of the *Desmodium* before the dry season, the other in March or April to prepare the soil freed in autumn for fresh growth.

Planting is in rows 50 cm. to 1 m. apart; cuttings are inserted every 20 or 30 cm. in the row. (DU PASQUIER, R., *Bulletin Economique de l'Indo-Chine*, Hanoi, December 1931-B).

J. L.

ANIMAL HUSBANDRY

World Economic Depression and Dairy Cattle Breeding in the U. S. A.

The present world wide depression is acting as a check on technical development in agriculture. Scientific development is now on the defensive whereas for years past it has been the main factor in increasing wealth and prosperity.

The situation in the dairy farming of the U. S. A. is here taken as an example although, as will be shown below, its economic position has been less serious than that of other branches of agriculture. On the other hand in dairy farming, and particularly in dairy cattle breeding, the consequences might become even more disastrous since scientific breeding is an activity of which the results become effective only after a long period and any interruption means the loss of the work of past generations.

The problem in dairy farming is more acute in the United States than elsewhere because the American farmer is less bound by tradition and this fact which makes for more rapid progress in times of prosperity also results in quicker retrogression if economic conditions are not favorable.

According to the latest communication of the Bureau of Agricultural Economics of the Department of Agriculture the economic situation of the dairy industry is relatively satisfactory as compared with that of other branches of agriculture.

Prices of dairy products have fallen considerably of recent years. Butter shows a decrease of 15.9 % from 1929 to 1930 and of 24.3 % from 1930 to 1931. But even with such a rapid fall in prices the dairy farming situation has been less bad than that of other agricultural branches. As shown in Table I the general trend of prices showed a smaller decrease of the price index figures for dairy products than for the average of all farm products. The still more rapid fall in the prices of all foodstuffs ensures to the dairy farmer a wider margin of profit.

TABLE I. — *General trend of prices in dairy products compared with farm price of other products, prices paid by farmers for commodities bought and wholesale prices of all commodities.* (Average prices August 1909 to July 1914 = 100) (1).

	Farm prices of dairy pro- ducts	Farm price of other pro- ducts	Prices paid by farmers for commodities bought	Wholesale prices of all commodities
1925	137	147	159	151
1926	136	136	156	146
1927	138	131	154	139
1928	140	139	156	141
1929	140	138	155	139
1930	123	117	146	126
1931	94	80	129	107
January 1932	85	63	121	98
February 1932	79	60	—	97
March 1932	76	61	—	—

(1) *The Agricultural Situation*. Washington, April 1932.

Dairy farming in the United States is almost entirely dependent on the internal market. *Foreign trade in dairy products* has never been of great importance and has declined of recent years, so that, as shown in Tables 2 and 3, dairy products represent less than 1 % of the total exports of agricultural products, and less than 2 % of the imports of agricultural products. The import-figures for dairy products are of little importance in relation to dairy production, especially if it is realised that a great part of the imported dairy products are specialties such as Italian sheep's milk cheeses which do not enter into competition with American dairy products.

TABLE 2. — *Exports and imports of dairy products compared with exports and imports of animals and animal products, vegetable products and agricultural products.*

(in thousand dollars) (1).

<i>Exports.</i>	1927-28	1928-29	1929-30
Dairy products	17,043	17,668	15,808
Animals and animal products (total).	234,082	239,624	224,353
Vegetable products (total)	1,581,369	1,607,595	1,270,811
Agricultural products (total)	1,990,050	2,025,308	1,657,569
<i>Imports.</i>			
Dairy products	37,748	37,764	31,908
Animals and animal products (total)	736,774	758,993	676,318
Vegetable products (total)	1,456,317	1,419,575	1,215,257
Agricultural products (total)	2,408,965	2,400,817	2,101,290

(1) *Yearbook of Agriculture*, Washington, 1931.

The rather high imports of milk and cream from Canada have been almost stopped by the new protective tariff introduced in 1930, which established a tariff of 6 ½ cents per gallon for milk, 14 cents per pound for butter and 7 cents per pound for cheese.

TABLE 3. — *Index numbers of dairy exports compared with exports in all commodities from 1920-21 to 1929-30 (1).*

(Base 1910-1914 = 100)

	Dairy products	All commodities
1920-21	524	127
1922-23	406	112
1924-25	396	126
1926-27	288	136
1928-29	243	117
1929-30	221	97

(1) *Yearbook of Agriculture*, Washington, 1931.

These facts show that the dairy market is regulated by the *internal supply and demand*. Demand for dairy products has increased almost continuously during the last decade owing to the increase in population and to the increase of the per capita consumption. The increasing demands have been followed by an increasing dairy production. Only recently has this development been discontinued. Table 4 shows that apparent consumption has decreased since November 1931 owing to the diminished purchasing power of the American consumer. At the same time production continued to increase with the exception of the month of January 1932 which shows a very slight decrease.

TABLE 4. — *Estimated production and apparent consumption in dairy products (calculated in total milk equivalents) (1).*

<i>Estimated production.</i>	1932	1931	1930	Increase or decrease
January to December inclusive . .	—	55,720	55,674	+ 0.1 %
October 1931	—	4,203	4,146	+ 1.4 »
November »	—	3,721	3,498	+ 6.4 »
December »	—	3,839	3,715	+ 3.3 »
January 1932	3,810	3,819	—	— 0.2 »
February »	3,738	3,606	—	+ 3.7 »
<i>Apparent consumption.</i>				
January to December inclusive . .	—	57,186	56,564	+ 1.1 %
October 1931	—	4,878	4,717	+ 3.4 »
November »	—	4,075	4,122	— 1.1 »
December »	—	4,274	4,391	— 2.7 »
January 1932	4,008	4,400	—	— 8.9 »
February »	4,048	4,106	—	— 1.6 »

(1) *The Agricultural Situation*, Washington, December, 1931-April, 1932.

The increased production has been mainly due to the important increase in the number of dairy cows. This increase has been more marked of recent years than in any similar period for a considerable time. The reason of the expansion in dairy production was, according to the Bureau of Agricultural Economics, that "returns from dairy farming have been relatively better than for alternative enterprises and that there has been sufficient margin between the cost and prices of dairy production to make possible the profitable utilisation of farm grown feeds in this enterprise". Table 5 shows this striking increase in the number of milch cows, which is even more marked if considered in relation to the increase in the total number of cattle.

TABLE 5. — *Comparative numbers of milch cows, dairy cattle and total cattle (1st of January of each year) (1).*

	Total number of cattle	Dairy cattle	Milch cows over two years	Cows and heifers 1 — 2 years	Cows and calves under one year kept for milk	Per- cent- age or milch cows to total cattle	Proportion of cows and heifers of 1 — 2 years to cows of over 2 years	Proportion of heifers and calves under one year to cows over 2 years
	(thousand head)							
1927	56,832	33,992	21,801	4,059	4,491	38.3	18.6	20.6
1928	55,676	34,019	21,828	4,184	4,646	39.9	19.2	21.3
1929	56,389	34,040	21,849	4,416	4,875	38.7	20.2	22.4
1930 (*) . .	59,730	34,634	22,910	4,700	5,042	38.2	20.5	22.0
1931 (*) . .	60,915	35,166	23,558	4,777	4,639	38.6	20.2	19.6
1932 (*) . .	62,407	—	24,379	4,665	—	39.2	19.1	—

(1) *Yearbook of Agriculture*, Washington 1931.

(*) *United States Livestock Report*, Washington 1932.

It would seem however that in the near future the number of cows will again begin to decrease, the number of heifers and calves kept for milk having decreased. On 1st of January 1932 there were in fact 19.1 cows and heifers between one and two years for every hundred cows over two years, while the figures were 20.2 and 20.5 respectively in 1931 and 1930. The decrease in calves under one year preceded that of animals between one and two years as seen in Table 5, last column. In the near future however a reduced production corresponding to the fall in consumption cannot be expected.

The fall in prices and decrease in consumption have been accompanied by a sharp *reduction in the farm value of milch cows*, which has been even more rapid than the similar decrease in farm value of other domestic animals. The farm value of milch cows increased until 1929 and then began to decrease, reaching in 1931 the lowest point of 39.61 dollars, which is below the pre-war value (42.99) (see Table 6).

TABLE 6. — *Farm-value of domestic animals in the United States (1).*

	Milch cows	Cattle other than milch cows	Sheep	Pigs
	(Dollars)			
1922	48.68	21.87	4.80	10.59
1923	48.67	23.44	7.53	12.31
1924	49.94	23.07	7.91	10.30
1925	48.39	22.58	9.70	13.20
1926	55.02	26.42	10.51	15.80
1927	59.58	28.28	9.71	17.25
1928	73.93	36.31	10.24	13.20
1929	84.57	42.98	10.62	13.05
1930	83.43	40.79	8.92	13.76
1931	57.57	28.30	5.35	11.66
1932 (*)	39.61	26.64	3.40	6.14

With this considerable loss of capital and with diminished profits the financial position of the dairy farmer has become highly unsatisfactory. His financial position is even worse if the farmer is engaged also in other agricultural enterprises, the economic condition of which is even more disastrous than that of dairy production. As consumption tends to decrease and production will increase for at least the next year there is little hope that the financial position will improve and there is more probability that the dairy farmer will tend to economise on expenditure.

* * *

Research work in dairy cattle breeding has during the last decades been conducted less with a view to increasing production than to render production more stable from generation to generation, in order to diminish the risks of the dairy

(1) *Yearbook of Agriculture*, Washington, 1931.

(*) *United States Livestock Report*, Washington 1932.

farmer. It has been recognised that a high producing animal will only be obtained with approximate certainty from animals in which the factors responsible for high production are homozygous. While production capacity is easy to determine with females it is more difficult to recognise the inherent producing capacity of the male and its capacity to transmit this ability to its progeny.

The results of the breeding work of the Bureau of Dairy Industry of the United States Department of Agriculture over the last 13 years now enable the Bureau, according to a report of the Chief of the Bureau, to recommend to breeders of dairy cattle the continuous use of sires which have demonstrated through their progeny that they are transmitting high levels of production. The results indicate that success will follow the application of this principle of breeding whether the system of mating used be outbreeding, linebreeding, or inbreeding.

Many efforts have been made to establish a method for *determining the transmitting ability of bulls*. One of the most interesting experiments is the work undertaken by the "Mount Hope Farm" in Massachusetts. This work resulted in the establishment of an index by which the transmitting ability of the bull as to the production of milk and butter fat can be expressed. The observations made on the farm with a large number of animals have shown that the transmitting ability of the bull is not represented exactly by the mean between the average production of its daughters and its dam but that it is above the lower milk production by about 7-10 of the difference and above the lower butter fat production by about 4-10 of the difference. As a result of these observations the Mount Hope Index has been established to express the transmitting power of a bull. Similar work has been undertaken in many Experiment Stations of the Union and the determination of the transmitting ability of the bull, by comparing the production of daughters and dam, is now considered the keystone of the breeding system.

Attempts have also been made to establish the *correlation existing between external characteristics of animals and their production capacity* but no conclusive results have yet been reached and no recommendation in this respect can be given to the practical breeder.

It is perhaps hardly necessary to point out that to ensure high producing offspring by a bull is a work of long duration and the necessary homozygous factors will only be accumulated after a number of generations.

To-day it is realised that there is no guarantee that bulls which are sons of high producing cows will transmit this quality of their dam to their daughters. The Dairy Bureau of the Department of Agriculture tested the transmission capacity of more than a thousand bulls of tested herds comparing the production of daughters and dams. This comparison showed that $\frac{1}{3}$ of the bulls reduced milk production, $\frac{1}{3}$ did not sensibly decrease or increase production, while only $\frac{1}{3}$ really increased production. This observation shows the necessity of selecting such bulls as can be relied on to increase or at least not to decrease the production capacity.

But the whole system of selecting well-transmitting bulls must be based on reliable records of origin and production of dairy animals. These records

are procured by herd-book registering, by the dairy testing system and by the proven bull movement which was only initiated a few years ago.

Herd-book registering in the United States is carried out by a small number of great herd-book associations each of which is concerned with only one of the important dairy breeds and acts over the whole territory of the Union. Entering of animals in the herd-book is conditioned by very severe rules and progeny is generally entered only if the parents have already been registered in an American or recognised foreign herd-book of the breed. Most of the herd-book associations have, besides ordinary registers in which only animals having a certificate of origin from registered parents are entered, so called advance registers, or registers of merit, in which animals are entered not only by virtue of origin but also by production ability.

The progress made by the Herdbook Associations is illustrated by the figures giving the number of pure bred dairy cattle registered each year. As shown in Table 7 and Fig. 1 the number of registered animals continuously increased until 1929 for the four most important dairy breeds.

TABLE 7. — *Pure bred dairy cattle: number registered each year (1921-1931) (1).*

	Ayrshires	Guernseys	Holstein-Friesian	Jerseys	The four breeds together
1921	5,874	22,007	127,850	42,336	198,067
1922	6,381	22,072	113,772	45,452	187,677
1923	7,553	26,734	115,132	50,450	199,869
1924	6,639	28,467	111,529	52,163	199,098
1925	7,533	32,041	109,594	53,856	203,024
1926	7,862	34,690	111,088	55,752	209,392
1927	8,401	35,471	109,963	64,077	217,912
1928	10,111	39,027	121,726	73,909	244,773
1929	11,419	40,949	125,365	71,861	249,594
1930	10,209	44,472	105,143	58,117	217,941

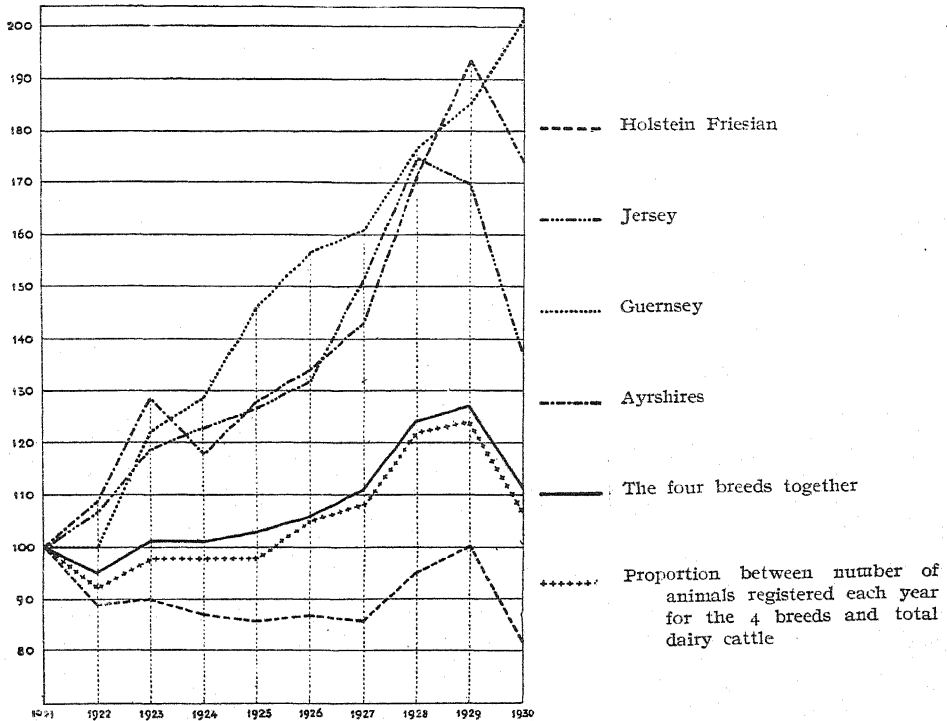
(1) *Yearbook of Agriculture*, Washington 1931.

Only the number of registered Holstein-Friesians varied much from year to year. Since 1929 the total number of registered cattle of the four breeds has considerably decreased. While the number of registered Jersey cattle showed a downward movement already in 1928, Holstein and Ayrshires began the decrease in 1929 and only the Guernsey breed continued its upward movement after this date. On the whole, however, the progress in herdbook registration may be considered as having been interrupted since 1929, and this interruption is undoubtedly due to the fact that dairy farmers now tend to save the expense of registering their animals. This retrogression is more evident if it is taken into consideration that during the same period the total number of dairy cattle and especially of dairy cows has increased (see Table 7, last column).

Dairy cow testing is carried out in the United States by the Herdbook Associations as well as by so-called Herd Improvement Associations. The great

Herdbook Associations are testing the animals with the purpose of entering them in their Advanced Registers or Registers of Merit. This testing work is called official testing and is carried out by the Associations in collaboration with the State Experiment Stations. Each Association has a different system of testing and even within the same Association different testing systems are sometimes used.

FIG. 1. — *Pure bred dairy cattle: number registered each year (1921 = 100)*



Official testing is costly owing to the great distances which supervisors have to cover, especially if the more reliable monthly supervision is used.

Besides this official testing a great number of Herd Improvement Associations are working throughout the country. The main purpose of these Associations is the testing of their members' cows without regard to breed. Generally each of these Associations has 26 members and employs one tester who visits each member once a month, measuring the milk given by each cow and the fat content of the milk (often also the fodder consumption). The first of these Associations was founded in 1906 and since that time the movement has grown very rapidly and without interruption except for a slight decrease during the war. In 1930 the number of dairy herd improvement associations reached 1143. In 1931 the numbers fell off again.

TABLE 8. — *Number of Dairy Herd Improvement Associations and Co-operative Dairy Bull Associations (1921-1931) (1).*

	Dairy Herd Improvement Association	Co-operative Dairy Bull Associations
1921	452	158
1922	513	190
1923	627	218
1925	732	220
1926	777	225
1927	837	248
1928	947	235
1929	1,090	339 (*)
1930	1,143	296 (*)
1931	1,112	359

(1) *Yearbook of Agriculture*, Washington 1931.

(*) Incomplete figures. (Probably much higher).

The *Co-operative Dairy Bull Associations*, of which the first began to operate in 1908, aim at securing for small dairy farmers the use of good dairy bulls. This movement also showed a very rapid increase, the number of Associations reaching 248 in 1927. Figures reported on this movement for 1929 and 1930 are incomplete, as they do not cover the whole territory of the Union; it seems, however, that this movement also has stopped increasing since last year.

Mention has already been made of the so-called *Proven Bull Associations* operating in connection with the Extension Services and the Agricultural Experiment Stations of the different States. No figures however, regarding the development of this recent movement are at the writer's disposal.

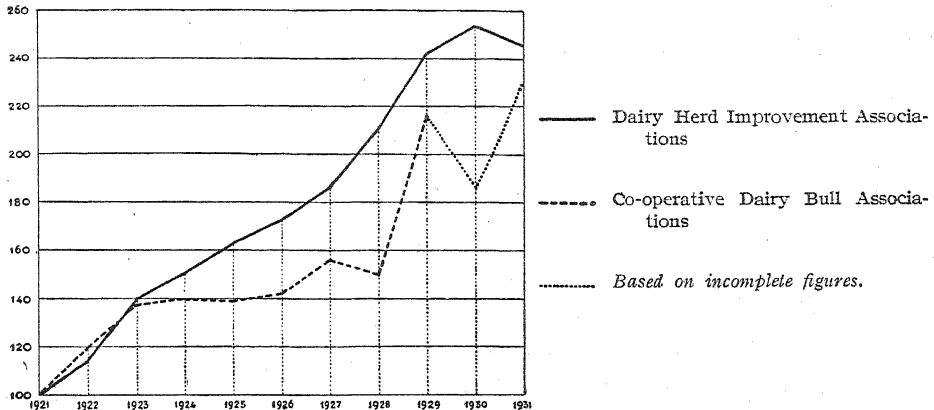
* * *

The facts so far reported are not in themselves alarming. It may be however that the slight backward movements already apparent signify the beginning of a retrogression in dairy cattle breeding technique and as such merit careful consideration.

The retrogressive tendency would seem to be closely connected with the present business depression. The bad financial position of the dairy farmer, illustrated earlier in this article, tends to produce economies in directions yielding little apparent returns. The interests of the individual however are in conflict with those of the community. The individual farmer is inclined to consider whether his outlay is profitable or not under given economic conditions and it may be that the expenditure on breeding work such as fees for herdbook register-

ing, dairy cow testing, bull proving, etc. is not paying to the individual farmer owing to the diminished value of animals and to the very low prices of products. It is however in the interests of the community to preserve values created by the work of generations. Discontinuation of breeding work means uncontrolled

FIG. 2. — Increase and decrease of Dairy Herd Improvement Associations and Co-operative Dairy Bull Associations 1921 to 1931 (1921 = 100)



breeding, diminishing the productivity of animals and rendering more and more difficult the future return of prosperity.

For these reasons it may be of value to draw attention to what may become serious dangers if economic conditions continue to be antagonistic to progressive breeding work and which might perhaps be avoided by action of the community. The problem is of the greater importance when it is considered that what applies to dairy breeding in the United States to-day will undoubtedly apply also to other branches of agriculture in other countries.

S. TAUSSIG.

AGRICULTURAL INDUSTRIES

The Edible *Cyperus* and its Industrial Uses (Oil, Sugar, Starch, Fibre, etc.).

L'HEUREUX and VLASSOV, who were the first to carry out research on starch extracted from tubers of the edible cyperus, ground almond or chufa (*Cyperus esculentus* L.), have recently shown in a thorough study of the subject that this starch, which is readily and economically obtained under industrial conditions, is equal in value to the best starches now on the market. "It is remarkable", observe the writers, "that a plant product as valuable as that of *Cyperus esculentus* should have been as little studied and that the studies started by Prof. PRIERAERTS (1921-1923-1924) have been so little followed up in subsequent literature".

The resources offered by the cultivation and industrial treatment of chufa will thus be briefly discussed, considering more particularly the technique of extraction of the oil, sugar, starch and fibre, the commercial value of the products and the possibility of making productive lands which are unsuitable for other crops.

Cyperus esculentus can be grown in very diverse climates, sub-tropical, tropical, and temperate (Mediterranean), and is at present in cultivation in Egypt (*sakit*) and Algeria and has a certain importance in Spain.

In Spain (Valencia and Galicia) the spread of chufa cultivation is principally due to the tubers being used in the making of "horchata de chufas", (chufa orgeat), a well known refreshing beverage, rich in vitamins and with a high food value.

In the other countries chufa is marketed for direct consumption mainly by the natives and is used to prepare a special meal used by the Jews for making a kind of bread and cakes.

SOIL, AND CULTURE. — Chufa is a perennial grass with a branching rhizome which becomes enlarged forming starchy tubers; it requires warm ground of medium consistency, well mellowed and moist.

The most suitable soils are alluvial sands containing relatively high quantities of Mn, S, Ca, Mg, and boron.

This is readily explicable when it is realised that the ash of the tubers contains a large quantity of Mn (6 times that of the potato), S, etc. Rhizomes of plants grown on a coast or on land rich in NaCl contain large quantities of chlorine and sodium. In rhizomes grown on ground deficient in potash part of the sodium replaces potash. This crop therefore presents a means of profitably using salt lands unsuited to other plants.

Although chufa is a plant which greatly exhausts the soil owing to its vigorous growth and thus requires intensive manuring with rapidly available fertiliser (dung and chemical fertilisers), it has been observed that certain cucurbitaceous crops, such as melon, and grain crops (wheat, oats, rice, etc.), when following chufa grow with particular vigour, giving high yields.

Rotation. — The 4-year rotation, chufa, rice, cereal (wheat, oats or maize), crimson clover, proposed by R. NAVAS, is not practised in Valencia. Normally chufa follows potatoes. In certain places of average fertility rice, wheat or other grain crops and chufa are grown on the same ground; the rotation is more rapid and a whole year is never given solely to a crop of chufa.

PROPAGATION AND CULTIVATION. — At the end of winter the tubers, after being steeped in water for 24-36 hours, are planted in pockets 30 to 40 cm apart. Each pocket receives 2 to 4 tubers which are then covered with 3 to 4 cm of soil.

The necessary hoeings and watering are carried out during the growing season.

In a climate characterised by a marked dry season copious and repeated watering from May to September is the main factor in the success of the crop. The system of spreading asphalt paper mulch or a liquid paste of finely ground chufa leaves round the plants makes cultivation possible in dry regions where periodical irrigation is impracticable.

For the success of an industrial crop of chufa it is necessary also: (1) to improve the growth by using for planting only selected and acclimatised tubers (white chufa of Alboraja, Spain); (2) where frost is frequent to give the plants protection by a dung mulch or by movable coverings, square or semicircular, 2-4 m in length, formed of galvanised wire netting with a large mesh filled with synthetic resin such as "Pallopas", "Plastopal H.W.", etc.; (3) where possible to establish nursery beds and to plant out by hand or by machine; (4) in regions which are unhealthy or where labour is scarce or too costly to use for harvesting (September-November), special lifting and binding machines; (5) in salt land where drainage is difficult to reduce the toxicity of the NaCl by adding CaCl₂ (250 kg per hectare) in order to increase the possibility of associating chufa growing with other crops and at the same time to increase the availability of the fertilisers and the gradual sweetening of the land.

PRODUCTION AND STORAGE OF TUBER. — At the present time tuber production varies between 8000 and 14,000 kg per hectare. Each stool gives about 450 tubers weighing from 230 to 240 grams; the average weight of the aerial parts (glossy tough leaves, 30-65 cm in length) is about 320 gm.

The tubers (15-20 mm in length; maximum diameter 12 mm) are never twisted and are covered by a very thin skin; the flesh is a slightly yellowish white. In a single growing season one tuber gives rise to a stool bearing some hundreds.

Tubers for seed are freed from soil and rubbish, sorted and after 1-3 days exposure to sunlight are stored in thin layers in perfectly dry sheds. Tubers for consumption are sorted, washed in running water in baskets or washing machines, dried in the sun or in special desiccators graded and stored.

COMPOSITION AND TREATMENT OF TUBERS. — According to analyses obtained by various workers the tubers have the following mean composition: Starch 27-30 % - Saccharose 15-20 % - Oil 20-27 % - Proteins 1-2.7 % - Resin 6.5-7 % - Water 7-8 % - and cellulose 7-14 %.

The chief constituents of the tubers - oil, saccharose and starch - have been studied and the work of PAILLEUX, PIERAERTS, L'HEUREUX, etc. shows that white crystalline saccharose can be extracted from the tubers probably more cheaply than from beet and cane.

(1) *Oil.* — Chufa oil is of superior quality. In many respects it is similar to olive, hazel and sweet almond oils and is excellent for both food and industrial purposes. Its exact biological value has still to be determined by tests of the quality and quantity of the contained vitamins.

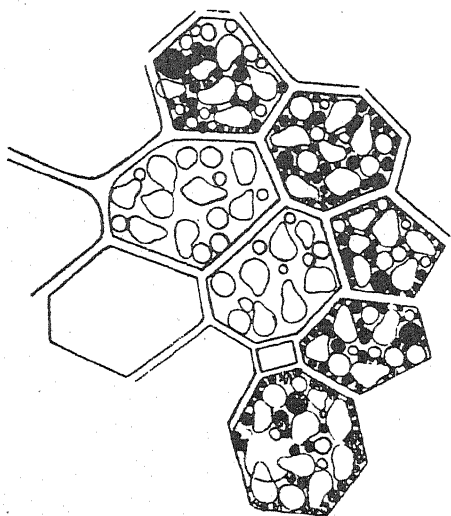
The essential constituents of chufa oil are glycerides of oleic and myristic acids (HELL, TWEDEMEDOW, PIERAERTS, etc.). The main characteristics of the oil are shown in the following table.

By separation with the "lead-ether" method (PIERAERTS) it has been found that the liquid fatty acids represent 80 % (nearly the whole of which is oleic acid) and 20 % is made up of solid acids (mainly myristic acid); traces of linoleic acid have been found.

TABLE I. — *Characteristics of chufa oil (from the first pressing, filtered).*

Physical characteristics	Chemical characteristics
Specific weight: at $15^{\circ} = 0.9176$, at $15-20^{\circ} \text{ C} = 0.924$ (VILLAVECCHIA)	Acid index: 1.7
Solidifying point: clear at $+ 1^{\circ} \text{ C}$	Saponification index: 191.3 (according to VILLAVECCHIA: 225)
Rotatory power (α_0 at 22°): 0.06	Iodine index: 75.1 (according to VILLAVECCHIA: 62-63)
Spectroscopic test: no absorption	Glycerine: 8.82 %
Refractive index at 25° : 1.465	Non-saponifiable: 0.62 %
MAUMENE index: 37°	
CRISMER index: 85°	

From an economic standpoint chufa oil is of great value particularly as an edible oil, equaling in fineness of quality olive, hazel and almond oils.



Tangential section through a chufa tuber showing cells filled with starch grains (white) and oil globules (blackened by treatment with osmic acid).

It possesses also the remarkable property of not solidifying nor even becoming turbid at temperatures approaching 0° ; its point of solidification may be lowered by demargarinisation to $1-2^{\circ}$ below zero.

Chufa oil shows a marked resistance to the action of air, light and other influences. This gives it a noteworthy superiority over other oils for food as for the following industrial purposes.

(a) Various uses in pharmacy, in the perfumery and fine soap industries; the manufacture of special neutral toilet soaps and for cleaning animal and vegetable fibres.

(b) For oiling wool, etc. (carding and combing, treatment of rags, etc). Chufa oil is clear, without odour, gives no deposit of stearin and readily forms

comparatively stable emulsions; its use therefore can be recommended in the industries depending on emulsified soaps or oils which are little oxydisable (treatment of skins in tanning, etc.).

(c) After demargarinisation chufa oil may be used as a lubricant for delicate machinery (clocks, instruments for accurate measurements); it is perfectly suitable for clearing and for preparing potash or soda "softenings",

(d) The low tendency to "gumming", weak oxidation, combustion point nearly as high (247° C) as that of olive oil, and viscosity equal to that of olive oil suggest the use of chufa oil in the lubricants industry.

(e) The characteristics of the oil make its use possible also in the foodstuffs preserving industry (meat, fish, plant products, etc.) and it might be mixed with advantage with other edible oils to reduce their tendency to oxidation and becoming rancid under the action of various factors (air, light, ferments, metals).

It has in fact been observed (STAMPA) that the addition of chufa oil (8-15 %) to certain oils very susceptible to oxidation (e.g., coconut oil) considerably retards oxidation and rancidity.

By hydrogenation, specially using palladium as catalyst, a chufa butter may be obtained which is white, odourless and superior to other vegetable butters.

(2) *Flour*. — Table II shows the chemical composition of chufa flour as compared with cereal flours.

TABLE II. — *Chemical composition of different flours.*

	Chufa	Wheat	Barley	Oats	Buckwheat
Fat	22,93 %	1,93 %	1,65 %	6,80 %	1,75 %
Nitrogenous substances	5,80 »	12,22 »	11,00 »	15,26 »	9,61 »
Non-nitrogenous extractives	50,11 »	85,5 »	84,46 »	73,77 »	86,56 »

Chufa flour has the following advantages:—

(a) It is as nutritive as buckwheat flour and almost equal to wheat and barley flours.

(b) Mixed with wheat flour in baking, chufa by its richness in oil, sugar and starch, may make a highly "thermogenic", food.

(c) Mixed with nitrogenous foods (meat, soya and pulse meals, fish, cheese, whey or milk albumens, etc.), chufa flour would form a complete food, highly concentrated and restorative, with an agreeable flavour, rapidly and completely assimilable even by the most delicate digestions (invalid food).

Further, the oilcake after removal of the oil and sugar, either raw or cooked, forms a stock feed which is readily taken and perfectly adapted for fattening purposes, for rearing young pigs, lambs, etc, and for poultry.

(3) *Starch*. — At the Chemical and Oenological Research Laboratory of the Belgian Congo L'HEUREUX and VLASSOV have recently carried out a thorough study of chufa starch, which had not previously been systematically investigated.

EXTRACTION AND COMMERCIAL SEPARATION OF CHUFA PRODUCTS. — The rational treatment of chufa for separating in turn the various products of the tuber (oil, sugar, starch, gum, etc.) in such a way that they shall retain their best characteristics and give the highest industrial output is not entirely easy, for the characteristics of the tuber must be taken into account and the conditions in which the different products occur in the cells.

One of the following methods may be used for the industrial extraction of the products:—

(1) *Oil extraction by pressure.* — The tubers after being freed from adhering impurities such as plant débris, earth and stones by mechanical or hand sifting, are washed in a channel of running water and raised by an elevator to an air drier (tunnel drier, belt drier, etc.) where they remain for some hours, or else are dried in large centrifugal driers.

The tubers are then ground to a coarse powder by ordinary mills with granite or Al_2O_3 millstones or else by a special crushing machine, and the mass put into a strong cloth (of coconut fibre) with a very fine mesh, previously moistened, and then submitted to increasing pressure by a strong hydraulic press. Movable plate presses (OLIER, France) or cage presses with metal screen (DRUGE, BRUN, BRACCI) are also perfectly suitable and avoid the use of cloths. The continuous "super-presses", (ERGOT and GRANGE 1930 type, OLIER, etc.) connected with filter presses ("Ultrafiltrus", D. M. S., etc.) or even centrifugal apparatuses (SHARPLES, "Triumphator", etc.) are the most recommendable.

(2) *Oil extraction by solvents.* — This may be effected with ordinary solvents in fixed extractors (OLIER, MERZ, "Argo", etc. systems) or in rotatory extractors (e. g., AMORINI-BRIGNONI) with multiple agitators working under reduced pressure. When, however, the starch is to be separated later or the exhausted oilcake is to be used for human food, extraction by solvents is not advisable. The best solvents are trieline and particularly dieline. In the writer's opinion a mixture of ethyl alcohol (60 %) + methyl alcohol (25 %) + trieline or dieline (15 %) is to be recommended.

(3) For extraction of the sugar the residual cake, after removal of the oil by pressure or solvents, is gradually exhausted in ordinary sugar factory diffusion batteries fitted with grids and in the upper part with a cloth strainer to prevent material in suspension from being carried away by the juice. Chufa must be exhausted at 30-40° to prevent the formation of a starch paste, particularly when the exhausted cake is to be used for starch extraction.

If the oil is extracted without heat to avoid alteration of the starch considerable quantities of oil can be recovered from the juices after pressing or diffusion either by decantation or by first slow then rapid centrifuging, making it possible to separate the oil and part of the colloids from the defecation juices by reducing (0.5 to 1 %) the quantity of lime added for defecation.

Sugar extraction by diffusion at low temperatures by the ODDO system (with ethyl alcohol, etc.) is also to be recommended. The starch is by this means almost completely freed from proteins and is thus more easily preserved. The starch is also more readily separable and is purer, whiter and of higher value.

These qualities, and the fact that the diffusion juice is already somewhat concentrated and pure, will compensate for the costs of recuperation and the loss of alcohol during treatment (1-1.5 %).

The industrial treatment of chufa may according to the products to be obtained be represented in outline as follows: —

(A) *Extraction of oil and sugar and subsequent separation of starch:* (1) Washing, sifting and desiccation (to 3-4 % of water) of the tubers. — (2) Paring and trituration of the tubers — (3) Extraction of the oil by pressure without heat, filtration and centrifugation — (4) Milling of the residual cake — (5) Extraction of the sugar by diffusion at 30-35° in grid diffusers fitted with special sedimentation separators for recovering the oil and starch — (6) Desiccation of the oilcake, grinding it to a coarse powder and separation of the starch by levigation — (7) Utilisation of the by-products: molasses and oilcake (stock feeding, cellulose extraction from the pulp residue after starch manufacture by the UBBELOHDE method, etc.).

(B) *Extraction of oil and sugar and subsequent production of alcohol:* (1) Washing, sifting and dessication (to 3-5 % of water) of the tubers — (2) Chopping of the tubers into cossettes or flakes (0.5 mm in thickness) (*) — (3) Extraction of oil by pressure (at 45°-55°C), filtration and centrifugation — (4) Extraction of the sugar by diffusion at 50-75° C or by the STEFFENS process; using water (½ hour) under pressure at 115°-118° C on exhausted cossettes and water at 103° and at 100° in the diffusion cycle gives good results. It would be of interest to apply the WILHELM SCHONEBAUM system for the preliminary treatment of the crude juices, which consists in filtering the juice with a pH of 6.7 through the WAGENAAR-HUMELINCK colloid filter, heating, carbonatation and sulphitation; the proportion of lime used is much reduced; the filtered juice is nearly pure — (5) Treatment of the exhausted cossettes or flakes by one of the "Amylo", EFFRONT or BOULARD fermentation processes and production of alcohol or direct utilisation of the sugar as a stock feed — (6) Utilisation of the by-products: oilcakes, molasses, vinasse, etc.

As regards the simultaneous separation of the sugar and starch it is considered by the writer that sugar solutions of different concentrations could be utilised to separate starch grains of differing size during levigation. The sugar solutions coming from the last of the starch sedimentation pans are returned to the pans for exhaustion of the untreated oilcake, while the starch after washing with pure water is dried and then gently heated on revolving metal plates to produce granulation.

In the writer's opinion, for the separate extraction of the products of the chufa the particularly suitable systems would be those based on phenomena of capillarity and osmosis. For example, the use of the DAVID process (see this *Bulletin*, 1931, No. 11, p. 444) or other similar processes, with slight modifications, would be highly profitable. By grinding the tubers finely and beating the resulting paste in a special apparatus a creamy emulsion (pseudo-solution) is obtained

(*) E. g., with domestic potato flaking machines: *Kartoffelflocken Fabrik* of Kröning and *Alexanderwerk* A. G. Remscheid (Germany), slightly modified.

holding in suspension the oil, the starch and the cellulose débris. By first slow, then rapid, centrifuging (ultra-centrifugation), the separation is obtained of the oil, starch, cellulose, sugary juices, gums and albuminoid substances, which in this case are present in very small quantities.

By taking into account the density of the emulsion, the vapour tension or certain liquids or solutions that may be added (NaCl, alcohol, etc.) and particularly the variations in pH during the operation, the separation of the products will be perfectly successful, the starch will be fine and pure and the oil of the first discharge will be equal in value to the best first pressing oils. The loss of products remaining in the residual cake will be minimum.

TABLE IV. — *Commercial value of chufa tubers as industrial raw material* (according to present world prices of the units in gold francs).

	Percentage	Prince per unit (gold francs)	Value (gold francs)
Saccharose	13 to 14,5	0,12	1,65
Protein	2	0,25	0,50
Starch	28 to 30	0,10	2,90
Oil,	20 to 22	0,55	11,55
Gum and cellulose.	20	0,05	1,00
<i>Total value in gold francs . . .</i>	..	..	17,60

On the basis of the food value of the cake, supposing that 8 % of oil remains after pressing (10 % of water), the price of the cake would be about 9 gold francs.

Taking 17 gold francs as the mean per 100 kg of tubers the value of the crop per ha would be: 100 to 140 \pm 17 = 1700 to 2380 gold francs, when the crop per ha is from 10.000 to 14.000 kg of the cleaned and dried (6.5 to 7.5 % water content) product.

On the basis of the present price (*) of chufa at Valencia (Spain) the above value of the crop may be *at least* doubled and be 3400 to 4760 gold francs per hectare.

VARIOUS USES OF CHUFA. — (A) Tubers. — (1) "*Horchata de chufa*". Chufa orgeat has a characteristic flavour reminiscent of both coconut and hazel nut and is sold either frozen ("*horchata solida*", "*glace de chufa*", etc.) or as an iced drink ("*horchata liquida*"). The great demand for it in Spain justifies the development of chufa growing and the high price of the tubers there.

Its preparation is very simple. Sound, selected tubers are soaked in water for some hours, then when they are soft and swollen they are allowed to drain

(*) Price of chufa at Valencia in 1914 = 65 pesetas. — Present price (1931) at Valencia = 120-140 pesetas.

and reduced to a pulp in a mortar or some kind of mincing machine. Warm water (40°) is added gradually and vigorously stirred, with care to emulsify the mixture as little as possible. The whole is filtered through a fine bolting cloth, then sugar, vanilla, cinnamon, etc. and finally candied fruits and cream are added to the liquid and the whole is frozen.

(2) *Roasted tubers as coffee substitute, etc.* — The roasted tubers are eaten like groundnuts, hazel nuts, etc. and are used in confectionery.

Chufa tubers after treatment with diastase and then roasting form a product which is valued in the manufacture of coffee substitutes.

(3) *Fermented chufa beverages.* — No experiments have yet been tried but it is thought that chufa might find a wide use in making fermented beverages. Some laboratory experiments carried out in Rome in 1928 showed that it is possible to obtain from chufa by means of ordinary yeast an alcoholic drink which is slightly acid and has an agreeable and characteristic flavour. In the writer's opinion the cake after removal of the oil and most of the sugars would lend itself to the preparation of a number of beverages.

Chufa oil cake may be used as a partial substitute for barley for the manufacture of various types of beer, specially those with little alcohol such as the American beers ("Swankey" type of Pennsylvania), etc. Further, the possibility of satisfactorily combining the cultivation of chufa with that of other starch crops such as potatoes, sweet potatoes, etc. will make available varied raw material of the highest quality for the manufacture of beer or other beverages in common use in different countries, such as "chica" (Mexico), "kwass" (Russia), "braga" (Rumania), and for fermentation by "koji", yeast for making "sake", "mirin", "sakurada", etc. (China and Japan). Also the possibility of obtaining by fermentation acidulated alcoholic beverages of differing flavour, more or less rich in acid (lactic acid, etc.), would be highly profitable for the treatment of intestinal disorders in countries with a hot moist climate.

(B) *Leaves and roots.* — It may be reckoned that the weight of the aerial part of the plant is about double that of the tubers: 20.000 to 28.000 kg per hectare. As with other Cyperaceae the leaves are of little forage value, but may be utilised for making twine for trussing hay and straw, or as litter, or for making paper, sacking, net, insulating materials, etc. The average commercial price of esparto fibre is now about 25 gold francs per quintal so, allowing that the value of chufa fibre would be about $\frac{1}{4}$ of that of esparto and that the yield would be about 20 % of the total aerial part of the plant, i. e. 40 quintals per ha, the value of the fibre per ha would be $6.25 \times 40 = 250$ gold francs.

(C) *Retting of chufa grass.* — Apart from certain fragmentary information about separation of chufa fibre by the ordinary peasant methods there is as far as is known no literature concerning modern methods of chemical or bacterial retting of chufa. Considering the present state of the research on retting by pure or mixed cultures it is not thought advisable to recommend here the use of any given system; in general, however, it is thought that treatment of the leaves by aerobic bacteria with a high oxidising power (*Pectinobacter amylophilum*, etc.) would be preferable to the use of anaerobic forms, owing to the better oxidation of pigments and thorough bleaching of the fibre.

(D) Paper pulp. — Chemical preparation of the pulp requires an exhaustive study of the material and complex installations. Simple treatment with a soda lye would give a marketable pulp. The leaves after being chopped by a chaff cutter to 4-5 cm should be macerated for 6 to 8 days in a 3 % soda lye at about 20°. The tissues would thus be broken down ready for grinding into pulp. By prolonging the mechanical action a pulp as fine as is desired can be obtained and with a yield of 35 to 40 %. The pulp would be of a more or less deep yellow.

(E) Other uses. — The aerial part and roots could be distilled in movable or stationary refuse burners or burnt in straw or other suitable burners to produce steam power for use in treatment of the tubers.

* * *

Although the average yield per hectare of chufa may at present be lower than that of other industrial crops grown on a large scale, the value of the product that can be obtained from the tubers is such that a development of the cultivation of this hitherto somewhat neglected plant may produce considerable profit, taking into account particularly the possibilities of: (1) improving the plant and increasing its yields — (2) bringing into cultivation land unsuitable for other crops — (3) transforming it by the scientific methods suggested above into products in demand on the world markets.

G. STAMPA.

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 L'HEUREUX et VLASSOV, Contribution à l'étude de la fécule de *Cyperus esculentus* L. — *Congo*, Bruxelles, 1932, N° 3, p. 329.
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BOOK REVIEWS *

Climatology.

Handbuch der Klimatologie von JULIUS VON HANN, 4te umgearbeitete und vermehrte Auflage von Karl KNOCH, I. Band: Allgemeine Klimalehre, 444 p., mit 26 Fig. im Text. Stuttgart 1932 (Verlag J. Engelhorn's Nachfolger (en tête: Bibliothek geographischer Handbücher begründet von Friedrich RATZEL, Neue Folge, herausgegeben von Albrecht PENCK).

[The 3 volumes of the 3rd edition of the well known textbook of Julius VON HANN on climatology [(1) General Climatology — (2) Climates of the Tropical Belt — (3)

* Under this heading short synopses are included of books received for review.

Climates of the Temperate and Polar Belts] were published respectively in 1908, 1910 and 1911, that is over 20 years ago. Climatological science having made great progress during this time and the book being much in demand, the author's heirs, in agreement with Prof. A. PENCK, who is general editor of the "Bibliothek geographischer Handbücher" of which this work forms part, decided to publish a 4th edition and to entrust its preparation to Prof. Karl KNOCH of the University and Meteorological Institute of Berlin.

Volume I of the 4th edition appeared in January 1932. The new author explains in the preface that he found difficulty in deciding whether to change fundamentally the form and plan of the 3rd edition or to alter as little as possible. He decided finally on the latter alternative for the following reasons: (1) HANN'S work treats climatology from a different angle from all similar books, for it sets in the foreground not the various climatic elements treated separately but the changes effected therein by the different Climatological factors, such as distribution of land and sea, altitude, latitude, etc. — (2) HANN would himself, if he had had to prepare a 4th edition, have changed the 3rd as little as possible.

But it stands to reason that this conservative attitude imposes a restraint on the author where dealing with the progress accomplished in the methods of climatological research, which could however not be omitted without risk of appearing stationary or even retrogressive. The author has managed to keep a happy mean by preserving all that could be preserved while adding the indispensable new features. In order not to increase unduly the bulk of the 4th edition (it has only 50 pages more than the 3rd) all that could be without disadvantage has been abridged to allow of a fuller development of certain chapters, more particularly those dealing with electricity and radioactivity in the atmosphere, radiation, altitude climates and their zones, climatic changes through the ages. The bibliographical references have been notably extended, particularly as regards instruments and their use].

T. B.

Soil Science.

MUENICHSBORFER Dr. Franz, *Bayerns Boden*, Die natürlichen Grundlagen der Siedlung: I. Teil: Südbayern, 167 p., 26 Fig., zahlreiche Photographien — 2. Teil: Nordbayern und Rheinpfalz, 230 p., 45 Fig. München 1932, Verlag Knorr & Hirth, G. m. b. H.

[These two volumes on Soils of Bavaria contain a full and attractively written description of the soils from geological and pedological standpoints. They are competently illustrated by photographs, profiles, geological maps, etc.

Volume I on *Southern Bavaria* includes a Summary, Preface and Introduction, followed by:

I. — *General part*: (1) Soil and climate — (2) The principal soil types of Bavaria — (3) The soil as basis for building — (4) Water and its supply.

II. — *The soil of Bavaria*: (1) The Alps — (2) The foothills of the Alps — (3) Bibliographical index — (4) Index of technical terms — (5) Index of localities and contents.

Volume II on *Northern Bavaria and the Rhineland Palatinate*, after a Summary and Preface, contains:

(1) Eastern mountain region. Fichtelgebirge and the Franconian forest — (2) The Franconian and M^{ts} borderland. The Ries — (3) Basins of the Nab and the Rednitz — (4) The "keuper" mountain region — (5) The "muschelkalk" region of Lower

Franconia - (6) The Spessart and the Upper Rhine - (7) and (8) The Rhineland Palatinate - (9) Bibliographical index - (10) Index of technical terms - (11) Index of localities and contents.

In most chapters of both volumes the writer, who is State geologist, gives interesting information on the soil and climate, water resources and useful minerals of the regions considered].

T. B.

Methoden für die Untersuchung des Bodens, im Auftrage der Arbeitsgemeinschaft des Verbandes Deutscher Landwirtschaftlicher Versuchstationen und der Deutschen Bodenkundlichen Gesellschaft herausgegeben von Prof. Dr. O. LEMMERMANN, I. Teil 90 p., 2 Fig. Berlin, 1932, Verlag Chemie, G. m. b. H.

[In September 1930 there was held at Königsberg (Germany) a meeting (Sep. 4) of the Commission for Research and Experiments on Soils and Fertilisers, appointed by the Association of German Agricultural Experiment Stations, also a meeting (Sep. 8) of the German Society of Soil Science. At both it was decided on the proposal of Prof. LEMMERMANN to undertake in collaboration the publication of uniform methods for soil study, conforming with the conventions fixed by the International Association for Soil Science.

Prof. LEMMERMANN was asked to give effect to the decision and an "Arbeitsgemeinschaft" (association of collaborators) was formed to undertake a critical study of the various methods now in use and to introduce improvements where necessary.

The purpose in collecting and publishing "uniform" methods is to bring about a more uniform study of the soil than is now practised, so that results obtained in different places may be more comparable.

The first results of this important undertaking are published in this work (Methods for Soil Study) which has been prepared by Profs. LEMMERMANN, EHRENBURG and ZUNKER in collaboration with certain of the most eminent German experts.

It is understood that the methods proposed as uniform should not be regarded as officially fixed to the exclusion of all others. Such standardisation is impossible in much scientific work and would only hinder progress.

This small volume is only the first part of a work of collaboration which should not be regarded as final but should be continued. In its 90 pages are contained first a list of the members of the "Arbeitsgemeinschaft" (which includes 29 German scientific institutions concerned with the progress of Pedology, each represented by one or more soil scientists), then brief descriptions of the uniform methods proposed for taking of soil samples, the physical study of inorganic and organic soils, the chemical and microbiological study of mineral soils, the determination of their fertiliser requirements and the chemical and microbiological study of peat soils. The literature on each subject is where possible indicated].

T. B.

GEDROIZ Prof. K. K. (Leningrad), *Die Lehre vom Adsorptionsvermögen der Böden* nach der 2. Auflage des Originals aus dem Russischen übersetzt von Dr. Ing. H. KURON (Breslau), Sonderausgabe aus den *Kolloidchemischen Beiheften*, herausgegeben von Prof. Dr. Wo. OSTWALD (Leipzig), p. 315-448. Dresden und Leipzig 1931, Verlag von Theodor Steinkopff.

[This small volume of 134 pages is a translation from the Russian by Dr. H. KURON (Breslau) of the 2nd. edition of Prof. GEDROIZ's monograph on the absorbent power of soils.

The 2nd edition, which was published in 1928, is similar to the original 1922 edition in scope, in that it supplies students with as simple an explanation as possible of the complex but important phenomena of the absorbent power of soils, without going too deeply into hypotheses and theories. The matter has however been revised and enlarged to include recent work by the author and others, but without giving all the bibliographical references on the subject.

The translator remarks that the phenomena studied in the monograph are included under the Russian term "pogloscenie", which signifies literally the action of imbibing or absorbing, to which correspond the German terms "Festhaltung" (retention or fixation) and "Festhaltungsvermögen" (power of retention or fixation). By power of retention in a wide sense the writer means the power of retaining or fixing various substances contained in the water penetrating through the soil and coming in contact with its solid phase. Thus the dissolved substances may be retained by the soil in whole or in part, which happens also to the particles of organic and inorganic colloids, to the larger particles in suspension and to living microorganisms.

According to the method of retention of the substances by the soil the following types of absorbent power may be distinguished: — (1) Power of mechanical retention — (2) Power of physical retention (adsorption) — (3) Power of physico-chemical retention or power of exchange (exchange adsorption) — (4) Power of chemical retention (absorption — (5) Power of biological retention. A chapter is devoted to each type, types 2 and 3 (physical retention or adsorption proper and physico-chemical retention or exchange adsorption) being treated in particular detail.

The study of the phenomena of retention by the soil is acquiring ever-increasing importance, so that this monograph will without doubt be of great value to all those concerned with the subject].

T. B.

Botany.

GISTL, Rudolf & Frhr. von NOSTITZ Arnold, *Handelspflanzen Deutschlands, Oesterreichs und der Schweiz*, 284 p., 40 Fig. Stuttgart 1932, Verlag Ferdinand Enke.

[In this work on the commercial plants of Germany, Austria and Switzerland are included all the wild and cultivated plants used for food, in medicine and in industry, apart from the main crop and forest plants and ornamental species.

The plants treated are arranged systematically according to their botanical characteristics, starting with the fungi. Each plant is described with an account of its origin, uses and chemical properties, if any. In the case of cultivated plants a detailed account of their cultivation is included.

In this book are collected a quantity of details hitherto dispersed in a number of handbooks and special publications, thus making it possible for readers interested in commercial plants to find all the necessary information, particularly in regard to medicinal, oil-yielding and textile plants. There are a number of good illustrations, mainly of the anatomical structure of the plants].

N. v. G.

Animal Husbandry.

STANG-WIRTH, *Tierheilkunde und Tierzucht*, 10. Band (Trächtigkeit-Zygote), 802 p., mit 368 Abbildungen, 2 mehrfarbigen und 17 schwarzen Tafeln, Urban & Schwarzenberg, Berlin-Wien 1932.

[The 10th and last volume of this excellent encyclopaedia of veterinary medicine and stockbreeding contains like its predecessors a series of articles written by leading experts in the subjects.

A long article by K. KELLER deals with questions relating to *Heredity*. After certain definitions the writer passes to the present position of the subject and emphasises the importance for the breeder of genetical research and its application in practice. The progress achieved in the genetical study of domestic animals is demonstrated and the characters the inheritance of which has been most studied are indicated.

The question of *Livestock Insurance* is dealt with by V. STANG. After an account of the general principles of insurance, a historical sketch of the development of stock insurance is given, followed by a description of the present forms of organisation and their application in different countries based on communications received from the countries in question.

In an article on *Vitamines* SCHEUNERT and SCHIEBLICH give an historical résumé of the subject, then describe in detail the properties of the various vitamines, their physiological effects and the serious consequences of their lack (deficiency diseases) in different animals.

O. MEYER gives interesting information on the *Breeding of thoroughbred and trotting horses*. He recalls the origin of the English thoroughbred and shows how this breed has spread in other countries and the rôle it has played in horse breeding. Information is then given about breeding methods, care, training and racing, followed by a short account of the breeding of the German thoroughbred. The breeding of trotting horses is similarly treated, with particulars concerning the Orloff and American trotters.

An article on *Wool* by SCHAEFER gives a brief account of the morphology and histology of the hide and staple and describes the different sorts of wool and their properties.

In an article on *Breeding Methods* V. STANG describes the technique of selection, methods of reproduction, cross-breeding and pure line breeding, while in-breeding is dealt with by Profs. KRONACHER and KLIESCH.

Prof. SPANN deals shortly with *Work output of draught animals* giving figures for the draught efficiency of horses, cattle and dogs.

A. MACHENS gives general information about *Goat breeding*, showing its importance, and details on feeding, selection and care of goats and on goat raising in Germany.

Owing to lack of space only the articles of greatest interest to the stock breeder can be mentioned; there are a number of others of no less interest on *Veterinary medicine*.

It should be mentioned also that there are descriptions of stock breeding in various countries on the same lines as in the earlier volumes, such as: — *Turkey* by IHSAN ABIDIN, *Czechoslovakia* by B. MACALIK and J. KRIZENECKY, *Hungary* by O. WELLMANN the *U. S. S. R.* by O. BEDERKE.

A separate volume appearing at the same time as Vol. X contains an *Index* to the contents of all 10 volumes of the Encyclopaedia].

E. M.

FORESTRY

International Problems of Forestry Protection against Damage by Wind.

The importance of wind as a factor in the life of forests has not yet been satisfactorily determined. The injurious effects of wind are not sufficiently recognized and, as the deplorable events of recent years demonstrate, have consequently not been adequately combatted. The study of measures against damage by wind is a very old one and the methods generally adopted are rather antiquated. It is a study that has however quite recently gained in importance and those interested are at present endeavouring in many ways, and especially as a consequence of the world crisis in forest products, to diminish the wholesale destruction of timber caused by storms. It is well-known that the gigantic losses caused by wind in recent years in the forests of central and northern Europe have considerably aggravated a situation already deplorable enough. They have resulted not only in immense losses but in upsetting management plans in many forests and in unexpectedly throwing large quantities of timber on the market, thus contributing to the further fall in prices.

The observations made as a consequence of the serious damage to forests caused by storms in recent years have given rise to a quite extensive literature on the subject that is well worthy of attention. On the basis of this documentation as well as of the very numerous and interesting replies to an international enquiry made by the International Institute of Agriculture, it is proposed to examine the cultivation methods, etc., of which foresters, and especially forest managers should not lose sight if they wish to prevent or at least lessen wind damage in the future.

GENERAL PROTECTIVE MEASURES. — General measures are concerned with the effective protection of forests against more or less normal winds. It is generally considered that it is impossible to protect forests against such violent and devastating storms as occurred for example (to mention only the greatest of recent years) on 4 July 1929 in Bohemia and Upper Austria, at the end of October 1930 in Bohemia and Prussia, on 22-23 November 1930 in Switzerland, Austria, Bavaria and parts of Czechoslovakia, and on 15 December 1931 in Sweden, disasters that devastated so many fine stands irrespective of their varietal composition, age or type of management. Even so the writers who have expressed this view (HUFNAGL, Czechoslovakia, KLEIN, Austria TANNER, Switzerland) indicate, in describing the damage caused by these storms, that stands rendered by their composition more resistant to the wind (mixed species and ages, density, undergrowth, etc.), did not, like those protected by previous cutting or by appropriate forest screens, suffer such severe losses as stands under less favourable conditions. It matters little whether these favourable conditions have been created by human foresight or by nature. The observations give very useful information regarding the methods to be followed in protecting forests in the future. No general rules applicable under all conditions can be given and the steps to be taken depend on local circumstances.

FOREST MANAGEMENT. — In woods under even-aged high-forest, says D'ALVERNY (France), the early establishment of an under-storey (of beech and fir, for example, under Scots pine) and in selection-forest, a mixture of species constitutes the best form of protection not to mention its other advantages, e. g., for the control of insects, etc. In places over exposed to the wind the formation of forests with full grown trees should, according to WAGNER (Luxembourg), be avoided and where the situation of the land necessitates the establishment of such forests, species most resistant to winds and storms should be chosen. In forests treated as coppice-with-standards many reserve trees of different species and age must according to PARDE (France), be preserved on the borders, while in forests treated as coppice a protective curtain should be left on the threatened borders.

CHOICE OF SPECIES, CREATION OF MIXED STANDS. — The classification of species according to their capacity of resistance to wind is of old standing. It is well-known that shallow-rooted species suffer from wind more than deep-rooted and that conifers and in general evergreens suffer more (especially in winter) than deciduous. It is also common knowledge that, as a preventive measure, less resistant species should be mixed with resistant. One of the most serious mistakes from this point of view inherent in the forestry work of the last century was the tendency to establish very large pure and homogeneous stands. The result is that it is the pure stands, especially the pure stands of pine, that have been the chief victims of the storms of recent years in large areas of Central Europe. It is especially desirable says CIESLAR (Austria) that isolated spruce trees should be disseminated in broadleaved stands. High-forest of beech and oak, if mixed, protect themselves, says BERTRANG (Luxembourg). The disastrous storm of 4 July 1929, unprecedented in human memory in Upper Austria, also caused very serious losses in the spruce stands as KLEIN (Austria) notices; fir suffered less, Scots pine and WEYMOUTH pine less again, while larch proved the most resistant of the conifers. Hardly 5 % of the total damage occurred among broadleaved species amongst which it was surprising to see many windfalls of oak. HUFNAGL (Czechoslovakia) observed similar facts in Bohemia where also spruce was the chief sufferer from the same storm. Larch and Scots pine, owing to their relatively small and slightly branched tops were there also the most resistant conifers; among broadleaved trees, oaks and also limes suffered most severely.

All these observations show the general behaviour of various species with reference to wind but many species are capable of changing their general character under the influences of their position and of local topographical conditions. High mountain stands are relatively spacious; the branches are very low on the trunk while the tops are small and pointed; thus the centre of gravity of the top is very low and hence the tree, thanks to its lateral branches which are larger towards the base, obtains an extraordinary solidity. The spruce, for example, one of the species that suffer most from wind in the lower belts becomes very resistant in exposed stands on the high mountains, where it develops a sturdy root system, strongly attached to the soil (observations by CIESLAR).

It is thus evident that nature comes to the aid of the forester; human intervention can however greatly assist nature by appropriate selection of seeds and seedlings.

AGE. — Recent observations tend increasingly to show that stands of mixed age class, which are generally the more spacious, suffer much less from storms than do equal-age stands, especially when very old. Even when a storm, despite all preventive measures, breaks and overturns the trees, the mixed age stands have the great advantage that the trunks that break or fall cannot injure or drag down with them (as often happens in equal-age stands) a number of neighbouring trees that would otherwise have been quite able to resist the storm (observations by SIEBENMANN, Switzerland).

Root competition is also less marked in the case of stands of the mixed age-class; the root systems of the trees are consequently better developed and the centres of gravity of the tops are lower. All these factors make mixed age stands more resistant to wind uprooting and go to show that the exploitable age must be taken into account where necessary, that quicker regeneration and establishment of lower storeys must be effected and that clearings especially require attention.

CLEARINGS. — It is now almost unanimously agreed that as a general rule clearings made with care and moderation, begun very early and frequently repeated in threatened areas constitute one of the best preventive measures against wind damage. As regards the influence of the degree of clearing on the resistance of the stands, the most general opinion, confirmed by observations on wind damage in recent years (especially by those of GANDIL on the storm that ravaged the forests of Denmark on 8-9 July 1931) is that stands heavily cleared over a long period are the most resistant and that those only lightly cleared suffer most. Care must, however, always be taken not to isolate the trees too suddenly, especially in pure and equal-age stands.

In the United States, in threatened areas, clearings are not generally very heavy.

Borders serving as protective screens or shelters are very frequently, e. g. in Estonia, neither cleared nor cleaned.

FOREST SCREENS, WINDBREAK BELTS, SHELTERS. — The establishment on the edge of the forest of these means of defence against the wind is of old standing. They are planted at right angles to the direction of the dominant wind and very often in the forms of a I, sometimes even in that of a U, so as to be effective when the direction of the wind does not greatly vary. They are made up of wind resistant species of which the tops rapidly require a considerable thickness.

An examination of the methods of management, of the composition and the of species preferred with regard to these belts in various countries gives the following results:—

In Great Britain and Ireland, according to FORBES (Irish Free State) there are employed, among others, on poor soils, Austrian black pine, Vosges fir and

beech; on better soils oak, ash, beech and elm. The trunks are pruned up to 4.6-6 metres above the soil along the border.

In Austria, according to CIESLAR, shrubs and local seedlings can frequently be employed for protective curtains. An appropriate treatment of the stand, including clearing and preservation of local shrubs on the edge exposed to the wind, is also often satisfactory. Resistant species and species with tops which start very low are chosen only when it is desired to establish a specially strong wind shelter.

In Belgium protective curtains are little used in forestry, save for plantations of Scots pine and sometimes for long-rotation coppice-with-standards. For the formation of these curtains the favourite species in the Ardennes is spruce planted at 1 m. \times 1 m. or at 1 m. \times 1.5 m. in three or five rows on the edge of exposed coppice. In middle Belgium, besides spruce, Corsican pine in three or five rows is employed round plantations of Scots pine. Borders of beech are also suggested. Round coppice with long rotation standards a ten to twenty metre belt of horn-beam coppice can be preserved at the time of cutting. Near dunes, on the exposed side, a slightly open curtain of resinous species such as Scots pine, Corsican pine, maritime pine or a growth or broom is adopted.

In Latvia, to protect stands of Scots fir in their early years against sea winds, *Salix acutifolia* is planted behind the first dunes and in front of the stands. As this species does not, however, thrive well it gives effective protection in Latvia for only about ten years owing to climatic conditions. After that period the first rows of Scots pine are themselves able to supply the required protection.

In Switzerland, according to information supplied by KNUCHEL the windbreak bells are arranged in the direction of the valley and are composed of coppice with standards or of simple coppice. In the former ash, elm, poplar, oak, alder and acacia are employed; in the latter especially spruce and Weymouth pine mixed with broadleaved species.

In Pensylvania (United States) shelter belts with branches are formed or recommended, the species employed being maples, elms, poplars (especially *Populus nigra* var. *italica* and *P. deltoides*), oaks, robinias, *Gleditschia triacanthos*, Catalpa sp. spruce and Austrian black pines, *Tsuga canadensis*, American walnut (*carya*) and *Platanus orientalis*. The width of these windbreaks is about four rows, with trees spaced at 1.2 to 1.5 m., in the form of a quincunx. The trees in the shelter belt that do not thrive owing to lack of direct light are removed when clearing and replaced by long-lived shade species under the remaining trees. The borders are maintained as close as possible on the side of the prevailing wind, only dying and dead trees being cut and the living branches never being pruned (PERRY, United States).

In Madagascar, according to the needs of the parcels particularly exposed to wind unexploited belts known as "windbreak belts" are maintained. Apart from the removal of dead and dying wood there is no cutting.

Pruning of border trees is, according to the most general opinion (BERTRANG, Luxembourg), to be avoided, as otherwise the wind may penetrate into the interior of the stand.

Amongst the observations regarding the behaviour of the various types of forest curtain during the exceptionally strong storms of recent years, those of HUFNAGL, made in Bohemia at the time of the storm of 4 July 1929 are well worthy of attention. The first row of protective curtain, which was of spruce was resistant, says this writer, while oak in similar conditions failed. Though the storm broke trunks of advanced and even of medium age immediately behind the first row of spruce, he is of opinion that if the wind had not had such an extraordinary force, the shelter curtain of spruce would have proved satisfactory. HUFNAGL summarizes the results of this observations of the storm in question in the following recommendations for the future: (1) Spruce is best adapted as a protective curtain but only when this is 20 m. or less in width and when each tree through frequently repeated clearing is allowed sufficient space for growth to permit the branches to reach the ground. This course at the same time prevents removal of the bedding and also desiccation of the soil by the wind. (2) Larch, also in a belt at least 20 m. broad, gives, if there is an understorey of spruce, a still more suitable protective curtain than pure spruce, since spruce suffers greatly from attacks of *Liparis monacha*. (3) Other light-loving species, for example, oak and Scots pine, make good forest curtains if shade species (spruce, fir or hornbeam) are present as under-storey.

JUDICIOUS ARRANGEMENT OF FELLINGS. — It has long been known that the direction in which fellings are made is important in connection with protection against wind. The main rules, mostly of recent date, for cutting are as follows:—

(1) Especially in clean cutting the risk of overthrow by the wind must be safeguarded. The protection offered by the situation must be utilised and fellings so made as to leave open as few points of attack as possible to dangerous winds a rule very generally applied in all countries: E. g. Germany, GOLDBERSEN; Austria, CIESLAR; United States, BALDWIN; Italy, Ministry of Agriculture and Forests; Latvia, Sweden, Royal Agricultural Academy.

(2) Fellings should be made against the direction of the prevailing wind in narrow valleys so as not to expose the non-exploited edges to the wind.

(3) In exposed areas the cuts are made in a form suitably prolonged in the direction of the contours with the long side at right angles to the prevailing wind and care is taken to proceed uphill (France, ARNOULD; Sweden, Royal Agricultural Academy).

(4) Clear felling should be avoided in places menaced by wind, exploitation taking place only by clearings and open cuts (Italy, Ministry of Agriculture and Forests; Switzerland, KNUCHEL).

(5) Final cuts on such areas should be made only in narrow belts (Germany, GOLDBERSEN).

(6) Corridors and passages for the exit of the wind must be left, the cuts being made in belts. Exploitation made by small group (United States, BALDWIN).

(7) Protective clearings must be left to aid the growth of young protective curtains (Germany, GOLDBERSEN, Austria, CIESLAR; Great Britain and Ire-

land, FORBES). It must not be forgotten, however that the method of protective clearings has the disadvantages of increasing the area of unproductive ground and causing the dispersion or irregular accumulation of the cover of dead leaves left by the wind, a factor that may have harmful effects. A further consequence is increased soil desiccation (Austria, CIESLAR).

(8) Alternate slip cutting should be used and belts as wide as possible left between the clearings (Hungary, Ministry of Agriculture).

(9) In making clear cuts windbreak curtains should as a rule be left on the side exposed to the wind (several countries, for example, Sweden, Royal Agricultural Academy).

(10) Stands for regeneration should be traversed by regeneration cuts following approximately the direction opposed to the prevailing winds (France, Conservation du Bas-Rhin).

(11) In making regeneration cuts seed bearers should be left standing in small groups or, if single trees are left, these should be dominant types with wind resistant roots (United States, Massachusetts Forest Service).

(12) Establishment and maintenance of wind resistant trees on the border and gradual diminution of trees on the border facing the wind (Austria, CIESLAR).

(13) The border facing the prevailing wind should be preserved as long as possible as a protective curtain (Germany, GOLDBERSERS; France, Conservation du Bas-Rhin; Luxembourg, BERTRANG).

(14) In forests treated as coppice-with-standards the stock trees must be left close together (France, PARDE).

(15) Cuts require regulation so as to protect the reserves after isolation (France, ARNOULD).

(16) Cultivation of small areas should be accompanied by natural regeneration and creation of mixed stands. Method of selection felling combined with natural regeneration is also recommended (Austria, CIESLAR).

(17) In forests treated as high-forest a belt of selection forest should be left (France, PARDE).

(18) Treatment by selection methods is preferable to that of high-forest in mountain forests where windfalls are frequent (Belgium, ANTOINE; France, ARNOULD).

(19) In the mountains at the upper forests limit, exposed to winds and avalanches, a protective belt should be preserved, that is to say a stand from which only dead and windfallen wood is removed (France, ARNOULD).

(20) If the forest occupies an exposed crest a protective belt of resistant species of about 60 metres on each slope should be left (Belgium, ANTOINE; Estonia, Forest Administration).

(21) On the plains there should also be left a protective belt on the circumference facing the wind and toward the sea (France, ARNOULD).

OTHER PROTECTIVE MEASURES. — To check desiccation of humus and dispersion of litter by the wind the soil should be left covered with existing seedlings and all wild shrubs should be preserved.

In certain threatened areas lands recently deforested may be protected by branches placed on the soil, herbaceous plants being sown between the branches (Hungary).

To protect recent plantings a stone or piece of upturned turf is placed at the foot of each plant, especially in limestone areas (Belgium).

On sandy soils, where the wind affects the young stems so as to form depressions at their base, good results have been obtained, by following the method of MARIANI (Italy) i. e., by placing small stakes, 30-40 cm. high in the ground alongside the plants in the second or third year after planting and tying them together to prevent movement.

As regards treatment of woods damaged by wind, the measures recommended to forest owners not only in their own interest but also, in view of the present crisis, in the public interest, will be the subject of a further study.

G. LUNCZ.

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OF

AGRICULTURAL SCIENCE AND PRACTICE

GENERAL AGRONOMY AND CROPS OF TEMPERATE REGIONS

Practical Immunisation of Plants by Genetic Methods.

It is an established fact that prevention is better than cure, and it is difficult to imagine a more completely preventative measure against the diseases and enemies of plants than the use of immune varieties. This method is all the more advisable during this period of crisis which calls for economy on all sides. It is therefore natural to find in phytopathology a diminution in the use of chemical products and all other costly methods, and on the other hand an increasing tendency throughout the world to adopt the cheap and simple method of immunisation, as soon as suitable varieties are created.

A distinction must be made between acquired immunity and innate immunity. The first, which is of immense importance in human and veterinary medicine, but has, up till now, been considered of no practical value with regard to plants, has aroused considerable interest owing to the labours of CARBONE and ARNAUDI (Milan). These authors have actually proved that plants can be successfully inoculated against pathogenic micro-organisms. They have several times been able to increase the resistance of a plant to a given fungus by preliminary treatment with more or less virulent cultures or extracts of the same fungus. This artificially produced resistance, however, lasts only about three weeks at a time. The observations and experiments made by MONTEMARTINI on the oidium of the oak, however, give reason to hope that there are cases in which acquired resistance may last longer. These cases would be suitable for the practical application of inoculation. Besides this, certain diseases, such as bunt of wheat, only attack the plants at a certain stage of development, often during a very short period. It would then be enough to immunise the plant during this receptive period, which would appear to be practicable.

Undoubtedly, acquired immunity, especially by inoculation, can never be of such practical importance in the vegetable world as it is in the animal kingdom. The contrary is true of innate immunity. This has, up till now, played only a secondary role in animal husbandry. Only quite recently has it become known that experiments begun in 1924 with the cross-breeding of wild boars and improved domestic pigs have been successful in producing a race of pigs resistant to swine plague by combining the immunity of the boar with the good qualities of the pig which served as mother.

On the other hand, innate immunity is of very great interest with regard to plant selection. The researches of BIFFEN and NILSSON-EHLE have shown

that hereditary resistance is transmitted according to the Mendelian rules. In the simplest cases resistance is determined by one dominant factor which will produce in the second generation 1 susceptible individual to 3 resistant. This has been verified by HUBERT who crossed Peragis spring wheat with Normandy wheat, which latter is resistant to rust. But the case is often more complicated. ZEINER, for instance, crossed a "Walpersii" barley resistant to loose smut (*Ustilago nuda*) with another variety, the "Heils Franken", of high value but non-resistant to smut. Here also resistance seems to be dominant. However, the vigour with which it is manifested depends on three factors which transmit independently and which produce in the descendants variation from complete resistance to complete susceptibility. The same holds good for the resistance of the potato against *Phytophthora infestans*, which likewise depends on a whole series of factors. Resistance is not shown unless the combined effect of these factors passes a certain limit. The case becomes still further complicated if several different biologic strains of the parasite are present. In order to obtain resistance the plant breeder must then combine in his products all the individual factors causing resistance to the various biologic strains of the parasite. Where there are, for instance, 60 different strains of the parasite, as in the case of wheat rust, the task may appear well-nigh impossible. However, SCHREIBER has shown in dealing with anthracnose of the bean (*Gloeosporium Lindemuthianum*), that it is possible to obtain immune varieties although there are 34 biologic strains of this fungus. He has been able to divide these forms into three groups: A, B and C, to which correspond three different independent factors guaranteeing immunity against the corresponding group. By infecting the F_2 generation of a cross between a susceptible and a resistant variety with one of the groups (A, B or C) of the biotypes of the fungus, he obtained a segregation of susceptible to resistant in a proportion of 1:3. By infecting with two groups at a time ($A + B$, $A + C$ or $B + C$) the result was 7:9 corresponding to a twofactorial segregation. An infection with all the groups at once ($A + B + C$) gave a threefactorial segregation: susceptible 37; resistant 27. In the F_3 , out of a total of 288 lines of descendants, 5 were found to be homozygotes resistant to all the biologic strains of the fungus.

It goes without saying that such varieties, having undergone so severe a trial, are far more likely to resist still other biologic strains which might appear later.

In practice, selection for resistance depends very largely on the manner in which the test is made. Observation in the field is not enough as the element of chance is too strong (soil conditions, weather, specific climatic conditions within the crop itself, etc.). It is necessary to use artificial infection and to make observations in the laboratory. There are available simple and welltried methods of dealing with potato wart disease, rust of cereals and potato *Phytophthora*. The method of artificially infecting barley with *Ustilago nuda* is also good but difficult. If a correlation between immunity and some morphological or anatomic character could be found, the work of selection would be greatly simplified. In this regard, LONGREE's work on the correlation between the resistance of the potato to wart disease and the plant's aptitude to produce callus tissue should be mentioned.

The very nature of the immunity of plants is as yet little known; it is, however, of great interest for the plant breeder to learn the mechanism and to know, for instance, if the immunity of a given plant is *active*, arising from a defensive reaction of the plant itself (such as the formation of layers of cork cells), or if it is *passive*, due to certain qualities (hairs, structure of the epidermis, acidity of cell sap, etc.) which render it immune from the attacks of micro-organisms. Quite recently EZEKIEL has been able to prove that the resistance of some species of plants to root rot (*Phymatotrichum omnivorum*) is dependent on the presence and the concentration in the plant of certain specific elements which hinder the development of the fungus. The resistance of onions to smut J. C. WALKER has shown to be dependent on the presence of protocathechuic acid.

Selection by cross-breeding cannot be begun unless strains known to be resistant are available. It is therefore necessary to obtain the largest possible assortment of varieties. In order to remedy the poverty of «genes» in our cultivated plants, which have lost part of their valuable genes during the centuries in which man has been gradually bringing them from their centres of origin (VAVILOV) to their present places of cultivation, it is sometimes necessary to return to the wild varieties for crossing with the improved species. The resistance-determining factors if not found in our cultivated plants can be discovered in the wild and primitive varieties. In testing the descendants of a cross between a wild and a cultivated species for resistance, the susceptible forms are easily eliminated. The main difficulty consists in afterwards eliminating the undesirable qualities which will have been introduced by the wild species. To do this it may be necessary to cross several times with a cultivated variety, testing each time for resistance. This laborious work must be carried on throughout several generations of the plant, usually entailing a like number of years. It is therefore fortunate that the researches of T. D. LYSENKO (Odessa) have resulted in the perfection of a process which will reduce the ordinary length of the work of selection to a half or even to one-third. This process, called by the Russians «iarovisation» (1) consists mainly in treating seeds with high or low temperatures. Seeds thus treated develop rapidly from the vegetative to the reproductive stage. Moreover, if the duration of light is artificially regulated so as to influence favourably the photoperiodicity of the plants in question, they will complete their growth cycle in a much shorter time. «Iarovisation» is practised in the U. S. S. R., both for selection and in ordinary agriculture, and it would appear to be acquiring great value for grain cultivation in dry climates.

The practical examples mentioned above prove that it is possible by selection to arrive at varieties which combine with their other qualities the faculty of resistance to disease. The Americans have been very active in the practical application of immunisation by selection. As far back as 1908 W. A. ORTON was able to produce in South Carolina varieties of cotton and melon resistant to wilt and a variety of rust-resistant wheat. Since that date scientific research and practical experiment have advanced every year. Experiment stations in

(1) From the Russian «iarovoi» = of or belonging to the spring, from which is derived the expression «iarovisatia» = iarovisation, which might be translated as «springisation».

different States of the Union, amongst which that at Minnesota takes first place, have produced varieties of ever-increasing resistance, particularly of rust-resistant wheat. Today, resistance to disease is everywhere the main purpose of numerous experiments in plant selection. We have already mentioned the work recently done at Halle on these lines. We must add to this the research on cereal rust done by the « Biologische Reichsanstalt » (Dahlem) in collaboration with Professor GASSNER (Brunswick), and that of R. H. BIFFEN (Cambridge) and NILSSON-EHL (Sweden). Satisfactory practical results have been attained in British India with the creation of a variety of barley resistant to *Helminthosporium sativum*, in Japan with the creation of a rice resistant to *Helminthosporium Oryzae*, etc. Of late years the most conclusive demonstration of selection with an aim to immunisation was the creation of the sugar cane variety P. O. J. 2878 by J. JESWIET (Dutch Indies). This variety, which combines with almost complete immunity against mosaic and sereh a quite extraordinary productivity, has, within a few years, supplanted all other varieties grown in the Dutch Indies. It is thanks to this new variety that the sugar cane cultivation of those countries has been able to compete successfully with beet sugar growing.

The selection of immune varieties still raises many problems and possibilities. Practical agriculture may still derive many benefits from it, just as was the case in the cultivation of the vine on phylloxera resistant stock which was the salvation of French viticulture at the end of the 19th century. One of the most urgent problems today is the creation of direct producers resistant to phylloxera. Another problem is that of the creation of a bunt-resistant wheat. Realisation is in sight. There are many other problems of which the solution will gradually be reached. Often a new resistant variety may be of only local or temporary value, but these limitations apply to almost all new varieties and must not be allowed to hinder the progress in the right direction which has already led to such happy results. It is, however, necessary to enter a protest against articles in the daily press which are apt to mislead the uninformed public by raising too great expectations and which do not lay sufficient stress on the great difficulties and the immense amount of patience entailed in the work of the plant breeder.

In order to strengthen the scientific bases of the selection of resistant varieties, there must be close collaboration between plant pathologists and geneticists, a collaboration which should have no national boundaries but should, on the contrary, embrace the whole world. It is to be noted with satisfaction that, in the case of rusts, collaboration is being effectively realised between Germany, the United States and Uruguay, and it was with a view to intensifying this spirit that the General Assembly of 1931 of the International Association of Plant Breeders recognised the Biological Institute of Berlin-Dahlem as the international centre for research on the biological strains of rust.

An international agreement should be made whereby the plant breeders' produce would be put under legal protection throughout the world, rendering it impossible for any country to refuse to export new and valuable varieties, as has occurred in the case of some disease-resistant species.

If world agriculture is to make real progress it is necessary that all innovations should be communicated as soon as possible and that all progress made should be put without restriction at the disposal of all the members of that large family which is formed by the agriculturists of the world.

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TROPICAL AND SUBTROPICAL AGRICULTURE

Agricultural production of Siam.

1. — RICE. — The main agricultural product of Siam is rice. The Kingdom of Siam is one of the three great rice exporting countries. Siam and Indo-China together export a quantity of rice slightly less the export from India, including Burmah.

The rice exports from Siam represent 85 % of the total exports of this country. Moreover rice is the most important cereal figuring in the food of the

Siamese population, and as the welfare of the population depends on this crop it will be readily understood that the progress of the crop is watched with the greatest interest.

Rice is mainly cultivated in the large plains and river deltas ; these regions include the inland Circles of Bangkok, Ayuthia, Nagor, Chaisri, Rajaburi, Prachinburi, Nagor Svarga and Bisnulok.

The water required is supplied in part by the rainfall, the average annual precipitation being from 1 000 to 1 500 mm. while the quantity of water required by rice for complete ripening is 1800 mm. The surplus required is obtained by a system of irrigation canals easily established owing to the existence of numerous streams and river deltas. The irrigation question has been the subject of careful study by the Government since 1913. The first irrigation canal, known as the South Prasak Canal, was finished in 1924. The irrigation scheme was subsequently completed and special endeavours have been made to drain the salt water held in the soil and to replace it by fresh water.

Varieties of rice cultivated. — These are numerous and may be grouped in two classes: glutinous and non-glutinous. The first group, the seeds of which are large, and red, purple or blackish in colour, forms the basis of the nourishment of the populations of the North and North East of Siam; the non-glutinous rice, on the other hand, constitutes the food by preference of the population of the rest of the Kingdom, as well as the principal export commodity of Siam.

The varieties of rice cultivated in Siam may be divided into mountain rice and rice grown on the irrigated rice-fields (the lowland varieties) :

(1) *Mountain rice.* — This is known in Siam under the names of “Kao Rai” or “Kao Pai”, and is planted exclusively for consumption on the spot. It is not necessarily planted on the mountain side, but may also be grown on the new clearings of the Jungle. Naturally the cultivation depends entirely on the rain fall. Maize is frequently planted between the rice plants, but neither crop gives satisfactory results in this case. As a rule, the grower has to abandon rice cultivation at the end of a few years; when the soil obtained by clearing begins to lose fertility, he goes elsewhere to clear another piece of land and to begin his cultivation over again.

This method of cultivation is harmful, and ought to be given up altogether.

(2) *Irrigated Rice.* — There are three groups of varieties of irrigated rice, distinguishable according to time of ripening, *viz.* early rice, late and normally ripening rice.

The first group of varieties have a vegetative cycle of from 2 ½ to 3 ½ months; the second group, a cycle of from 5 to 6 ½ months; and the third, a cycle of 3 ½ to 4 ½ months.

Rice is sown broadcast, without subsequent pricking out; or on the other hand it may be pricked out.

In the former case, the rice-field is ploughed as soon as the rains of May and beginning of June have sufficiently soaked the ground ; weeds are removed if too abundant. Then the seed is sown broadcast, some further cultivation is done with a view to burying the seed satisfactorily and the rest is left to nature.

In certain cases, channels are traced on the surface of the rice-field to drain the excess waters which might injure the germination process.

Rice thus sown is of less good quality than transplanted rice; it is called "Na Muang" or field rice. Transplanted rice, on the other hand, is known as "Kao Na" or garden rice.

The rice-fields intended for the reception of the transplanted rice are prepared with all the care usually given to a well kept rice-field. The distance between the rows varies from 20 to 40 cm.; the maximum spacing is found in the regions where the soil is richest.

In the inland Circles, planting begins in May and goes on till October; in the districts of the North and West it begins in June and also finishes in October; in the southern part of Siam it extends from July to December. The harvest takes place correspondingly from September to January, from November to February, and from January to May. The crop is gathered either by cutting the stalks low down with a sickle, or by separate cutting of each in accordance with the Malay practice, in the southern areas.

(3) *Floating rice*. — This is a variety of "Na Muang"; it is generally known under the name of "Kao Khun Nam". This rice grows in the regions of Siam where the fields are covered by a deep layer of water at the end of the rainy season.

Certain varieties of floating rice have only one bundle of roots fixed in the soil when the water begins to subside. At that moment the plants send out, from the joints of the stem, secondary roots which anchor themselves in the muddy water. There is thereupon an exuberance of vegetative growth and shoots are sent up, so that the whole plant after a little while resembles a sort of islet floating on the surface of the water. On subsidence of the water, the secondary roots become fixed in the mud, the stems break off at the height of the joints and thus new plants are obtained. The stalks of floating rice may attain and even exceed six metres in length. The harvesting is done from boats; gleanings are carried out later after the waters have retreated and the mud is beginning to dry.

For trading purposes, the following varieties are distinguished:

(1) "*Kao Na Sum*" (garden rice). — This is best quality rice, the grain is long and rich in fats. The plants are vigorous, the grain is well ripened, the husk fine. This rice is not liable to bruising during handling.

(2) "*Kao Na Muany*". — This is a rice of inferior quality. The grain is short and wide, poor in fat; it breaks very readily. The husk is thick. These grains mainly come from the floating rice which is harvested by means of boats. The larger number of the grains in the husk are red in colour.

(3) "*Kao Sam Ruang*". — This rice is distinctly superior to the last type. It contains a larger proportion of long grains and fewer red, coming from plants sown broadcast.

(4) "*Kao Bao*". — Superior variety to last.

(5) "*Kao Nio*". — This is the best variety of glutinous rice and is cultivated in small quantities in the different sections of the inland Districts.

According to the statistics, the average production of paddy in the whole of the Kingdom of Siam varies from 1490 to 1859 kg. per hectare. The highest yields obtained without the use of fertilisers are :

(a) 4034 kg. to the hectare in certain rice fields in the neighbourhood of Bangkok, with the variety "*Kao Samue*".

(b) 3284 kg. per hectare in a district of Province of Nakor Chaisri, with the variety "*Kao Lukon*".

The yield from one and the same variety differs very much in the different districts, on account of variations in the depth of the water, aeration of the soil, and the proportion of salts contained in the soil.

The vegetative cycle of rice lasts from 75 to 210 days. *Cæteris paribus*, varieties with a long vegetative cycle are the most productive.

II. — RUBBER. — Rubber has only been planted on a large scale in Siam for a comparatively short time.

The climate of the majority of the regions of Siam is on the whole unfavourable to rubber growing; there is too little rain and the periods of drought between the rainy seasons are too long. In a small part of the South East of Siam near the coast the climate is however favourable, and also in the Southern part of the Siamese Peninsula.

The rubber trees belong as a rule to small owners. The number of rubber trees existing in the different districts in 1929-30.

TABLE I. — *Number of Rubber Trees during the agricultural season 1929.*

CIRCLES	Trees under working	Growing trees	Totals
Chantaburi	2 781	7 514	10 295
Nakon Sritamarat	85 495	80 899	166 394
Pattani	139 041	273 291	412 332
Puket	30 725	60 177	90 902
Totals . . .	258 042	421 881	679 923

The average yield in rubber is 123 kg per hectare; this is very low and is due to the oldfashioned methods of tapping and also to the fact that the trees are tapped too young.

III. — COCONUTS. — These trees grow well in the eastern and southern regions of Siam. Unfortunately the parasites which have already destroyed the earlier coconut groves of the environs of Bangkok, are extending their depredations to the East and have already devoured whole plantations.

The coconut trees belong to Siamese capitalists. The average yield is 45 nuts per tree. A number of dwarf palms are to be found throughout the country, but there is no special cultivation of these.

IV. — SUGAR CANE AND OTHER SUGAR YIELDING PLANTS. — The sugar cane crops which were much extended at the beginning of the 19th century, have now lost a great part of their importance and Siam is obliged to import yearly 40 million kilograms of refined sugar. This decline in Siamese sugar production is due to the development of rice growing and to the low prices at which other sugar growers (Java in particular) can deliver their product on the markets.

At the present time about 8 000 hectares are cultivated in sugar cane. These plantations belong mainly to Chinese and are found in the province of Chomburi. The varieties cultivated are green, yellow greenish, and deep purple. As a rule the canes are consumed as a sweet food and not transformed into sugar.

There are in addition a certain number of sugar palms. The one most often met with is the *Borassus flabellifer*; nipas (*Nipa fruticans*) and arenga (*Arenga saccharifera*) are also found.

V. — COTTON. — The cotton plant has been cultivated in Siam from time immemorial and there are in consequence a large number of indigenous varieties. It is thought that the original variety of the plant in Siam is *Gossypium Nanking* var. *siamensis*, with white or coloured bolls. This variety is very generally grown in the northern part of Siam; its cultivation extends also in the South as far as the province of Kanburi.

The Department of Agriculture has imported cotton seed from Cambodia, India and Egypt and has distributed seeds to growers; unfortunately they have not made any effort to keep this seed pure, and a number of crossings have resulted so that Siamese cotton is far from uniform in staple, there being a mixture of long and short fibres. The cotton plantations of Siam would undoubtedly do better if there was a proper selection of pure varieties. The area under cotton at the present time is about 9 000 acres.

VI. — TOBACCO. — This is grown in all parts of Siam on a small scale as a subsidiary crop; the most important cultivation of tobacco is found on the banks of the Menam Chao Phya and its tributaries, in the northern part of the Payap circle and in the eastern Korat circle. Large crops of tobacco are also found in the regions of Pitsanulok, Rajaburi and the South-East of Bangkok.

Excellent cigarette tobacco could undoubtedly be grown in the country, especially in the northern circles. The Department of Agriculture has initiated some experiments on the cultivation of this type of tobacco. Seeds of three varieties of United States origin acclimatised in the Philippine Islands have been imported, as well as another variety directly from the States and another from China. Sowings have been effected in the district of Chiengruai, at three different points:

- (1) at some considerable height, at Doi Sutep;
- (2) on the lower slopes of the hills, at Hui Keo;
- (3) on the bank of the stream, at Me Rim.

The yield and the quality of the leaves coming from the first locality are good ; less good results have been obtained at Hui Keo.

The experiments will be resumed in the district of Chiengruai, which lies still more towards the north.

VII. — SESAMUM. — This plant is very widely cultivated throughout Siam, and in particular, in the circles of Ayudhya and Pitsanulok, which alone produce more than half the crop. It is sometimes sown in the ricefields in certain regions, for example in the circle of Rajaburi ; the growth takes place during the first months of the year and it is harvested in time to prepare the rice field for the rice sowings.

Sesamum is grown for the oil contained in its seed ; the cakes are used as stock feed or as fertiliser.

VIII. — LEGUMINOUS CROPS. — The most important of these grown in Siam are : the groundnut, *Phaseolus radiatus*, *Vigna sinensis*, and the soybean. The growing of these crops is carried on mainly in the circles of Rajaburi, Nakhon Sritamarat and Nakhon Sawan. An idea of the importance of this cultivation is given by Table II.

TABLE II. — *Area and Production of Leguminous Crops during the agricultural season 1928-29.*

CIRCLES	Area in Rai (0.16 ha.)	Production in piculs (0.6 quintal)	Production per Rai in piculs
Ayudhya	1 322	7 782	5.88
Chantaburi	281	1 784	6.25
Nakhon Chaisi	312	1 872	6.00
Nakhon Rajasima	618	1 540	2.50
Nakhon Sawan	2 343	9 886	4.22
Nakhon Sritamarat	2 312	10 876	4.70
Patani	2 966	4 599	1.55
Prachinburi	2 330	9 814	4.21
Pitsanulok	4 501	3 911	0.87
Payap	1 801	4 617	2.56
Puket	594	942	1.58
Rajaburi	3 318	15 008	4.52
Udon	778	2 665	3.42
Totals . . .	23 476	75 298	32.1

IX. — PEPPER. — The cultivation of the pepper plant, like that of the sugar cane, is on the decline in Siam. This decline may perhaps be attributed to the decrease in the selling price and to unscientific and routine methods of cultivation. In addition the pepper crops of the circle of Chantaburi, where nearly all the plantations are concentrated, have in recent years been attacked by various diseases.

The figure given in Table III indicate the extent of this cultivation in Siam.

TABLE III. — *Area and Production of the Pepper Plantations during the agricultural season 1928-29.*

CIRCLES	Area in Rai (0.16 ha.)	Production in piculs (0.6 quintal)	Production per Rai in piculs
Chantaburi	10 711	28 811	2.69
Nakon Sritimarat	190	760	4.00
Puket	487	1 121	2.30
Totals . . .	11 388	30 692	2.69

Pepper is mainly grown on land the soil of which is composed of a laterite of chocolate colour, with a very fine texture; chemically, these soils are richer than most of the soils of Siam. Propagation of pepper is effected by means of slips about 60 cm. long taken from the upper part of the bushes. These are planted in their proper place (and not in nursery beds) spaced at distances of two metres in every direction, and shaded by means of dry leaves. As far as possible irrigation of these plantations is carried out. The first gathering of berries is done at the end of three years; picking takes place once a year, from January to April. The maximum yield is obtained in the sixth year and the plant continues to produce over another six years.

X. — MAIZE. — Cultivation is diffused throughout Siam and especially in the circle of Nakon Rajasima.

XI. — OTHER CROPS. — Cultivation of capsicums, areca or betel nuts, cardamons, bananas, kapok and ginger is carried on in all parts of Siam, but only for the cultivators' own requirements.

A number of fruits are grown in Siam; the mango stands first, a large number of varieties being known. Citrus fruits come next.

The other fruits that should be mentioned are: breadfruit, pineapple, mangosteen, tamarind, papaw, water-melons, pomegranates, guavas, the fruits of *Sandoricum indicum* ("Katawn"), of *Eugenia malaccensis* ("Chompu"), of *Nephelium Longana* ("Lam Yai"), of *Nephelium Lit-chi*, etc.

J. LEGROS.

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ANIMAL HUSBANDRY

Organisation and Measures for Encouragement of Cattle Breeding in Hungary.

In spite of the serious economic situation great progress has been made in cattle breeding during the post-war years. In addition to the increase in head of stock there is a distinct improvement in quality, and an increased production of milk is also noticeable.

Before the war Hungary possessed 6.2 million cattle. In consequence of the treaty of Trianon, the country lost about two-thirds of its head of cattle. According to the census of the spring of 1931 the number of animals was returned as 1 813 894 ; since 1931 as a result of the crisis this number has been reduced by about 10 %.

Originally the stock mainly consisted of the grey Hungarian cattle, belonging to the "primigenius" group. Towards the end of the 19th century, there had set in considerable modification of the original stock ; the improved breeds of the West with coloured coat were steadily gaining ground as compared with the indigenous breeds. Wide diffusion of the improved western triple purpose breeds was brought about by the intensification of agriculture, the fall in cereal prices and the increased demand for meat, milk and dairy products. A further stimulus was also given by the propaganda in favour of forage crops and root crops and by the development of agricultural industries. The change thus effected may be illustrated from the following figures : in 1884, the grey Hungarian cattle constituted 83 % of the total head of stock ; in 1895, the percentage was 65.9 ; in 1931 it had fallen to 31.1, and by 1931 to 15 %. At the present time this breed has lost its importance in the trans-Danubian regions and is no longer found except in the great plains and the regions beyond the Theiss. Among the foreign breeds, the most widely diffused is the *Simmenthal*. The *Hungarian Spotted Red* breed has been obtained by constant improvement by use of *Simmenthal* animals. This breed is the most important in the country, now constituting 82 % of the stock. The remainder (3 %) consists of grey-brown Alpine breeds (*Montafon*, *Allgau*, *Swiss Brown*, *Oberinntal*) and various lowland breeds (*Dutch*, *Friesian*, etc.). The Hungarian stock is accordingly remarkably uniform, the more so as on the small farms, which constitute the greater part of the farmed land, there are only two breeds : the grey Hungarian breed and the Hungarian Red Spotted breed (1).

Cattle-breeding in Hungary is subject to legislation, and the breeding associations also take all possible steps for improvement of breeds. In 1894 a law on the subject of stock breeding was passed, and during the past four years new regulations have been in force. For public breeding of stock, both the breeding purpose to be kept in view and the inspection of male animals are prescribed

(1) For the description of the breeds of cattle in Hungary, see *The International Cattle Atlas*. Vol. Hungary, Rome, 1930. International Institute of Agriculture. (Editor's Notes).

by official regulations and the number of cows per bull is also so decided. State agricultural inspectors and veterinary experts are at the service of agriculture and animal husbandry. To encourage breeding, the agricultural associations organise cattle shows and offer prizes and hold breeding stock fairs in Budapest and in the principal towns of the province. The most important and the oldest of these fairs is that held by the National Society of Hungarian Farmers at Budapest every spring, the fair of 1932 being the forty-first. Here from 700 to 800 breeding animals are on show.

The first cattle breeders' association was founded in 1895 at Magyaróvár with the object of improving the breeding of cattle and the milk production. The first dairy cow testing society was founded at Kamond in 1910, on the Danish model. Before the war, the work of testing was being carried on over 37 districts and 12 000 cows were under test. Activity however had to be suspended during the war and it was not till 1920 that it was possible to resume testing. In 1922, the keeping of herdbooks on a uniform plan was added to the activities of these centres. In 1930 there were 66 cow testing areas at work, and 24 000 cows were under test or about 3 % of the head of dairy cows. In 1931 the number of cows under test fell to 18 733. Of these cows 80 % belong to owners of large or medium-sized farms, and 20 % to the small farmers.

The majority of the *Comitats* have a special society for the encouragement of cattle breeding which also undertakes the testing of cows. In one *Comitat* there are from one to eight cow testing districts with from 300 to 400 cows in each under test; the work of testing is carried out by an inspector of the society. The societies of the *Comitats* are grouped under three associations each with a manager whose function it is to supervise the dairy cow testing and the herdbooks. Uniform management is ensured by the National Herdbook Committee, the official organ of the Ministry of Agriculture. Half the members of this Committee are appointed by the Minister, the remainder by the National Society of Hungarian Farmers. Among the members of this Committee are also representatives of officially recognised Breeders' Societies.

The National Herdbook Committee fixes uniform rules for the keeping of herd books, for the cow testing, for the appraisal and marking of animals; it supervises the activity of the societies, and is represented at occasions for grading animals and at meetings of the societies. The Committee checks on the spot exceptional yields of milk and keeps a special herd book for the prime animals. The testing officers of the societies are experts who have taken special three month courses. They are under oath to fulfil their duties conscientiously. Testing takes place every two to four months. The quantities of milk and of butter fat produced are determined; new calves are marked by tattooing on the ears and the registers of dates of service and of births are inspected. The work of these offices is supervised by chief inspectors; and these in their turn are under the control of the managers of the various societies and of the Association. In 1930 HANSEN (Berlin) made a study on the spot of the Hungarian system of dairy cow testing of appraisal and of herdbooks, and was able to state that precision of figures of production in all respects was ensured by the excellence of the system and its conscientious application.

In the Herd Book of mixed purpose cattle, cows are entered only if yielding a minimum of 2500 kg. of milk and 30 kg. of butter fat every year in accordance with the official returns, and if they *have been favourably graded on appraisal of conformation*. Such appraisal is done every year on all farms; it is effected by a Committee including: one member representing the Ministry; one member representing the National Committee of the Herd Book; the manager of the society in question; two or three breeders; a veterinary expert. A single method is always followed in making the appraisal: as a preliminary twelve measurements



FIG. 1. — «Kicsi 476», Simmenthal cow yielding in 305 days
10,198 kg. of milk with 339 kg. butter fat content.

are taken (height of withers – height of back – height of croup – height of point of insertion of tail – length of trunk – width and depth of chest – chest circumference – width of croup – length and width of head – canon bone circumference).

In the course of the appraisal, the various qualities and the conformation of the different parts of the body (breed characteristics – muscularity – sex and organic characteristics – proportions – head and horns – neck – withers – back and loins – croup and tail – chest and trunk – skin – paunch and reproductive organs – bony system – hair – limbs and pace) are judged by points, with a maximum of five points for each quality. The points merely represent the *degree* of the qualities or defects, their nature being indicated on the appraisal sheets by means of special abbreviations.

The animals are graded according to quality in 7 classes (I - I/II - II - II/III - III - III/IV - IV). This grading does not depend on the total number of points obtained, but rather on the general impression. Practice has shown that the total of the points is not a reliable basis for classing according to quality, as, on the one hand, it is not possible to estimate each quality with absolute fairness, and on the other hand, many animals receive a large number of points for certain conformations, and yet the general impression they give does not justify the total thus reached. On the contrary, excellent breed-

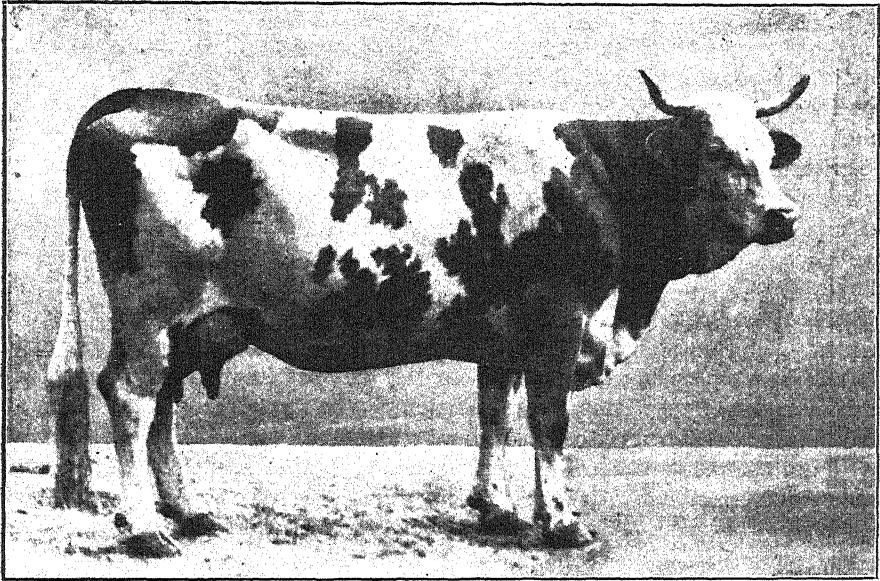


FIG. 2. — «Ruga», Cow of Hungarian Red Spotted Breed, yielding in 365 days
15,891 kg. of milk with 588,2 kg. butter fat content.

ing animals are to be found among those which have obtained a lower number of points.

At the time of the initial entry, the cows are entered on a register; at the end of a year of testing for milk and butterfat, the appraisal is made. If the production figures give a satisfactory result, it is decided, in accordance with the judgment of the conformation, that the cow shall be entered on the herd book. If the cow responds to all conditions, then she is placed in Class A. If, on account of external defects, the cow cannot be entered in the herd book, but a high milk production makes elimination from the herd undesirable, she is placed in Class B, since it is anticipated that by mating her with a good breeding animal progeny will be obtained suitable for registration in the herd book.

Cows classed in accordance with conformation in Class *A* are only entered in the herd book if their annual milk yield is at least 2 500 kg. with a butter fat content of 90 kg. A high milk yield being a very valuable quality, it seems desirable to give a certain preference to cows with this aptitude. On this principle, it is open to societies to modify the appraisal of the conformation in such a way that cows producing 3500 kg. of milk with 120 kg. of butterfat are classed one grade above the initial grade; those producing 6000 kg. with 170 kg. of butterfat, two grades up, and those with an annual milk yield of 7 000 kg. of milk with 240 kg. of butter fat, three grades up.

The Appraisal Book (fig. 3) consists of detachable pages. Three copies are made, by use of carbon paper, of each appraisal, one remaining in the book, one being sent to the owner of the animal and the third being attached to the corresponding page of the Herd Book.

This appraisal page or sheet, which contains a technical description of the animal, constitutes a document very instructive for the breeder who thus learns the criteria employed by the Committee. These documents are also most useful for mating purposes, especially if the breeder can select among several bulls the one which is most suitable for his animals. Comparison of the appraisal sheets for different generations reveals the qualities and defects which are transmitted.

The Herd Books, containing detailed and reliable data, are of immense assistance in scientific breeding, and the breed societies attach great importance to their being properly kept. The Herd Books are kept in accordance with a uniform method; they contain, in addition to the appraisal sheet, a pedigree in four lines, the description of the animal and all the figures relating to its value both from the point of view of breeding and that of milk yield. These are kept under the form of a card index. Throughout Hungary animals inscribed in the herd books are tattooed in the same way on the ears and have identical marking on the horns.

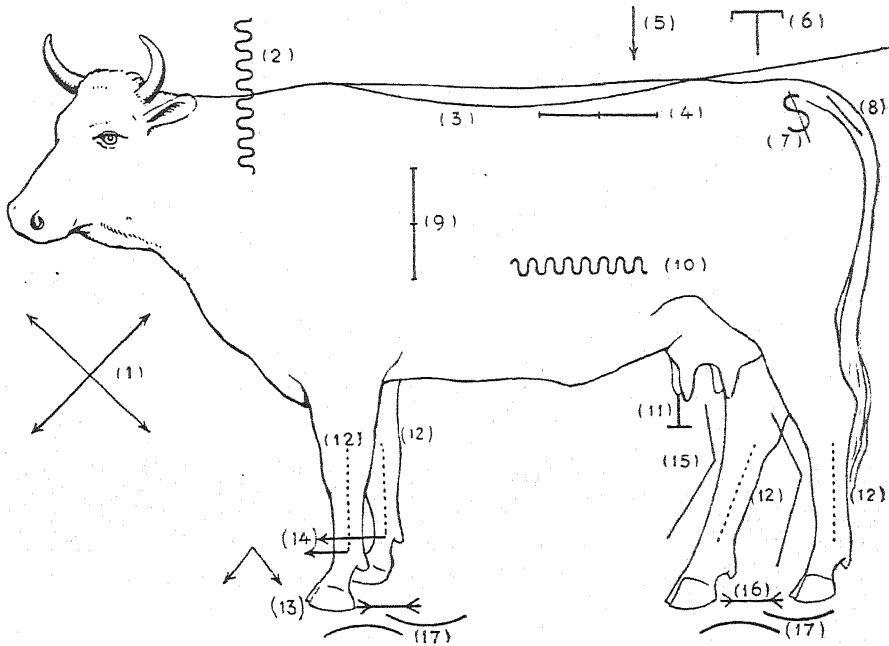
Cow testing which was resumed after the war has in less than ten years done much towards increasing the milk yield. The 15 236 cows of first lactation tested during the year 1929-30 supplied in 310 days, an average of 3 430 kg. of milk containing 128 kg. of butter fat. The average yield of 35 cows of the best herd reached 7 724 kg. of milk containing 279 kg. of butter fat.

These excellent results are due to selection, scientific feeding and to a much improved technique in giving fodder. The essential ration for a cow is calculated in accordance with the KELLNER method of starch values. For a maintenance ration there is counted, per 1 000 kg. of weight, 0,5 kg. of digestible protein and 5 kg. of starch value. To produce one kg. of milk, the calculation is that there must be 50 g. of digestible protein and 250 g. of starch value. Great importance is attached to satisfying the lime and phosphorus requirements and to a proper balancing in the ration of mineral salts. The regulation of fodder is an individual question.

The fundamental ration is calculated for a production of from 5 to 6 kg. of milk; cows yielding more receive a supplementary ration proportionate to their production. The calculation is for 0.4 kg. of concentrated feeds, to which

is added the suitable quantity of carbonate of lime to produce one kg. of milk. In summer the basis of the feeding is the pasturage and green fodder; in winter watery fodder (beets, beet slices) and often lucern hay. The concentrated feed is generally composed of bran, forage meal, crushed maize and oilcakes.

FIG. 3. — Appraisal sheet for cow of Hungarian Red Spotted Breed.



LEGENDE:

- | | |
|---|--|
| (1) = Body bulky | (10) = Skin not adhering to flanks |
| (2) = Shoulder-bone badly attached | (11) = Right front teat defective |
| (3) = Back concave | (12) = Limbs slender |
| (4) = Loins long | (13) = Faulty position of forelimbs |
| (5) = Loins badly attached to os sacrum | (14) = Weak hocks |
| (6) = Hindquarters too much raised | (15) = Faulty position of hind limbs |
| (7) = Croup dropping steeply | (16) = Hind legs too close together |
| (8) = Tail badly inserted | (17) = Brusque movements, pace incorrect |
| (9) = Chest deep | |

To increase the milk yield, the dry period is regulated to from 50 to 60 days. A very efficacious method consists in giving quantities of fodder to cows during this period, which is called "the preparation" of cows and all feed in abundance during the first three months of lactation. During the dry period, the cows, especially those intended to make records, receive a ration calculated according to their maximum production in the preceding lactation period, and then during

the first days of lactation, they are given a supplementary ration of from 0.8 to 1 kg. of concentrated feeds. The cows are milked three times a day and receive the larger proportion of concentrated feeds in the morning or at midday; the greater part of the fodder is given in the evening.

Since 1927 a Prime Stock Herd Book has been prepared, the first in Europe. In this are entered only the best animals, from the point of view of production and conformation, of those already registered in the herd books. Three classes are distinguished in this register: (1) prime pure bred animals, which must have produced over 305 days at least 3 500 to 4 500 kg. of milk containing 125 kg. of butter fat and must have been placed in one of the three first classes for conformation — (2) prime animals of the Hungarian Spotted Red Breed, in the case of which the same qualities as to conformation are required as well as a minimum production of 4 500 kg. of milk containing 150 kg. of butter fat — (3) prime dairy animals, which must produce 6 000 to 7 000 kg. of milk containing 210 kg. of butter fat. For inclusion in all three classes the requirement must also be fulfilled that the animal calves within 14 months of the beginning of the lactation in question. In the period from 1 January 1927 to 1 January 1932 there have been entered in the Prime Stock Herd Book 60 pure bred Simmenthal cows, 68 Simmenthal type, 568 Hungarian Red Spotted Breed, 36 Brown breed, 16 Lowland breed and 226 prime dairy animals.

Among the 1 207 prime cows, 341 have produced more than 6 000 kg., 41 more than 8 000 kg. and seven more than 10 000 kg. of milk during the 305 days of lactation.

For the grey Hungarian cattle belonging to the *primigenius* group, known as “podolic”, a National Association has been formed, as well as a Herd Book registering 1 300 cattle.

This brief description will be enough to make clear the great progress accomplished by the Hungarian stock breeding in the course of the last ten years. The milk production of triple purpose cows presents interest even from the international point of view, for the results obtained refer to mountain breeds and not to the lowland cattle. These excellent results are mainly due to a scientific feeding and to a much improved technique in the use of fodder. It can only be in the future that the good effects of selection based on milk production will become perceptible.

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Notes.

General.

CINEMATOGRAPHIC SERVICE OF THE PRUSSIAN MINISTRY OF AGRICULTURE. — For many years this Ministry has encouraged the production of cinematographic films for agricultural instruction and propaganda. This encouragement was at first confined to grants towards the production of such films but, at the end of 1930 a special Service was instituted under this Ministry for their production. During that

year, in accordance with the instructions of the Ministry, the agricultural films dealt with the following subjects: - (1) special instruction regarding the milking of cows (1312 m.) - (2) scientific milking (464 m.) - scientific ploughing with teams (520 m.) - the art of driving (4 parts, 1725 m.).

In 1931 the special Service referred to produced a lengthy film showing the measures taken by the Prussian State for the purpose of encouraging live stock-breeding. The first part, dealing with horse-breeding, is already complete. It consists of two chapters: - (1) State breeding, comprising the national studs (695 m. of film) and the secondary studs (2019 m.) - (2) private breeding, including the stock breeding regions (1210 m.) and the steps taken for the encouragement of this industry (1875 m.).

The films are lent without charge to persons interested who are responsible only for the expenses of insurance and transport. In order to diffuse their use a large number of portable projection apparatus have been distributed to Chambers of Agriculture and to schools.

In addition to these films others on a smaller scale, from 100 to 250 m. each have been prepared dealing in each case with some special branch of agriculture or stock-breeding.

ASSISTANCE GIVEN BY THE MINISTER OF AGRICULTURE OF THE PROVINCE OF QUEBEC (CANADA) TO FARMERS WISHING TO REPLACE THEIR TUBERCULOUS STOCK BY HEALTHY ANIMALS OF A GOOD BREED. — In his Circular No. 20 this Minister makes known the regulations laid down as regards the assistance extended to farmers in replacing live stock attacked by tuberculosis. For each animal declared to be a carrier and slaughtered in accordance with official orders the Ministry allows a compensation of 25 % of the value as estimated by the veterinary officials. This grant is only allowed for the initial testing of a herd and must be devoted by the recipient to the purchase of animals to take the place of those which are killed.

Any farmer who desires to receive his compensation in cash must purchase a pure-bred bull, if not already possessing one.

Before paying the compensation the Ministry requires the inoculation certificates of the animals substituted for those killed.

PRESENT POSITION OF STOCK-BREEDING IN ALGERIA. — The address delivered by M. G. TROUETTE, Inspector of the stock-breeding service in Algeria, at the meeting of the Algerian Farmers' Society on 5 January 1932, gave an illuminating summary of the present position of Algerian stock-breeding.

Some years ago the exportation of horses and mules exceeded the importation but during the last five years there has been a complete change in this respect. Algeria now exports 1000 animals less than the ten-year pre-war average while from 3000 to 4000 more are purchased than in the period previous to 1914, the purchased animals being essentially more powerful animals than those of Algerian breeding. The same situation is noted with regard to sheep and oxen. Before the war Morocco and Tunisia exported about 20,000 oxen annually but this traffic has entirely ceased and these countries are sometimes even purchasers. In the pre-war period also Algeria exported annually about 20,000 cattle to France but at the present time this figure is not reached even in two years. During this period France exported to Algeria about 6000 dairy cows and slaughter cattle and, when it is taken into account that Algeria purchases annually over 60 million francs worth of meat, milk, butter and cheese there can be no doubt that the local production does not suffice for the increasing home market.

From 1901 to 1910 the average number of sheep exported amounted to 1,186,000 head, whereas now not more than 2 million are exported in 3 years, the importation exceeding that of former years by 3000 to 4000 head.

It must be borne in mind, however, that the local consumption continually increases. During the year 1919, 114,000 oxen and 693,000 sheep were killed in slaughter-houses under inspection while the corresponding figures for 1931 are 178,000 oxen and 1,045,000 sheep.

In order to remedy this state of things, it is necessary above all to improve the quality of the live stock and satisfactorily to settle the question of feeds and fodder forming as it does one of the most serious obstacles to the development of the stock-breeding industry in Algeria.

CONNECTION BETWEEN HEALTH OF STOCK AND SUBTERRANEAN WATER. — This question, which is now being widely discussed in Germany, was dealt with by M. VON KAMEKE, Ministerial Director, in the *Zeitschrift für Schweinezucht* for 1932, No. 23. A large number of experts and some physicians, Professor NIPPOLDT being included among the latter, believe that they have discovered a connection between the earth's magnetism and certain physiological conditions. Hence a theory is maintained that live stock kept in a stable under which flows a subterranean stream are ill-developed and subject to disease. At the Benedictine Convent of Sankt-Otilien (Bavaria) an apparatus has been invented which may be installed in buildings for the purpose of deflecting the noxious radiations so that stables hitherto useless may now be employed for the housing of stock.

M. VON KAMEKE, who states that he was extremely sceptical regarding this theory, visited several farms and observed surprising results; especially among the Bavarian country-people. This apparatus has already become very popular, and is undoubtedly effective.

STOCK BREEDING ON GROUP FARMS OF THE U. S. S. R. — In a statement issued at the end of March the Central Committee of the Party protested against the compulsory group-ownership of cows and the smaller farm animals, which is contrary to the instructions given in that respect. The Committee desires that at least one cow, the smaller farm animals and the poultry, should be the property of the individual members of the group farm. The increase in the livestock on the farm should be ensured by purchase and by the rearing of young animals. The members of the groups who do not own animals will receive grants to enable them to purchase those required.

As a rule, on the agricultural "artels", or collective farms, a part only of the live stock is held in common, more especially the work animals, while the cows and other farm animals are left in individual ownership. There has, however, been frequent disregard of this latter provision, and the Soviet authorities are now obliging the local authorities to take steps for the restoration of animals unfairly seized. (From *Sowjetwirtschaft und Aussenhandel*, the official organ of the Soviet Delegation in Germany, Berlin 1932, No. 6).

SLAUGHTERINGS IN ARGENTINA AND URUGUAY DURING THE YEARS 1930 AND 1931. — According to the notices of the International Agricultural Commission (appearing in its Bulletin, *Der Internationale Vieh-Markt*, No. 4, published by the "Preisberichtsstelle beim deutschen Landwirtschaftsrat", Berlin 1932) the number of animals slaughtered in these two great stock-breeding countries during the years 1930 and 1931 were as follows.

	ARGENTINA 1)		URUGUAY 2)	
	1930	1931	1930	1931
Cattle	3) 3 780 000	3 260 000	1 108 000	201 000
Sheep	6 530 000	5 990 000	2 400 000	1 650 000
Pigs	738 000	748 000	63 000	69 000

1) Including farm slaughter-houses. — 2) Without farm slaughter-houses. — 3) Including calves.

Horses.

CHANGES IN THE CHARACTERISTICS OF HORSES OF HANOVER AND EASTERN PRUSSIA BREEDS. — The investigations of Dr. H. STEGEN, of Göttingen University, have brought to light the fact that the characteristics of the Hanoverian breed have undergone considerable modifications during the last thirty years. A comparison in the measurements collected from the very comprehensive material studied by the writer show that stallions have increased in height; in the last few years, however every effort has been made to subdue this tendency. This increase in height was due to the too great length of the leg and an increase in the depth of the chest. In 1927 length of leg had increased by 2 cm. as compared with that of 1896, and the depth of the chest by 1 cm. While this latter increase is considered a favourable sign an increase in length of leg is not desirable. The increase in the width of the chest is also favourable, as also of the chest perimeter. The canon bone perimeter is 0.04 cm. more than it was thirty years ago. As regards weight, in the year 1913 the 3-year stallions weighed 26.09 kg. more than in 1896 while today the figure exceeds the 1913 figure by 5.54 kg. The writer has also observed an increase in the length of trunk.

A similar change has taken place in the mares except as regards increased height. The mares of 1920-27 are a little smaller. The trunk, however, is longer, the bones heavier and the skeleton more massive.

M. Hofmann has made similar investigations regarding the characteristics of the East Prussian breed, obtaining the following results:—

	Height at Withers	Depth of Chest	Chest perimeter	Canon Bone perimeter
<i>Trakehnen chestnut mares.</i>				
Mares foaled before 1920	158.4	77.25	188.60	19.40
Mares foaled after 1920	159.6	77.80	192.60	19.95
<i>Trakehnen bay mares.</i>				
Mares foaled before 1920	159.3	75.15	190.20	19.64
Mares foaled after 1920	164	75.60	193.90	20.86
<i>Gudwallen stud stallions.</i>				
Stallions foaled before 1920	160.7	76.85	189.60	20.40
Stallions foaled after 1920	162.6	77.80	194.10	20.90

The same tendency was observed in the other studs of East Prussia with the exception of those of Marienwerder and Braunsberg, where the increase in the dimensions was less marked owing to the fact that a somewhat heavier type had already been produced in these two studs.

In any case it should be noted that the changes in the direction given to horse-breeding have been more drastic in Eastern Prussia than in the remainder of Germany. The reason for this is that before the war horses were bred in this region principally for the army, while at present every effort is made to breed animals suitable for agricultural work but at the same time equally serviceable for riding or driving.

(From *Sankt Georg* 1932, No. 7).

Cattle.

COMPARATIVE STUDIES ON THE FATTENING OF YOUNG BULLS AND YOUNG OXEN IN GERMANY. — While oxen are usually preferred to bulls for the fattening of adult animals, there is a difference of opinion as to the advisability of using bulls or oxen in fattening young animals. Professor K. RICHTER, of the Tschechnitz Research Institute (Germany), with his collaborators, has carried out investigations for the purpose of deciding the question.

The animals selected for trial, belonging to a black piebald Lowland breed, came from Eastern Prussia and were 10-12 months of age at the beginning of the experiments. Various kinds of ensilage were given as fodder and, up to the 4th and 5th months, fresh and well-washed beetroot leaves, straw, hay, crushed cereals, potatoes, and also dried beetroot slices. The necessary proteids were supplied by a mixture of crushed ground nuts. In addition, 60 g. of ground limestone and 40 g. of salt were administered daily to each animal.

The daily increase in weight was greater in the case of bulls than in that of oxen, the difference being 160 g. daily; *i. e.*, at the end of the experiments the bulls had gained 32 kg. more than the oxen. The allowance of fodder having been the same in both cases, the difference necessarily arose, according to the writers, from a greater power of assimilation. In order to gain 1 kg. in weight the bulls required 3.94 kg. of starch value and 0.67 of digestible protein, while for the same gain, the oxen required 4.54 kg. of starch value, and 0.76 of digestible protein.

In further investigations trials were made as to the advisability of replacing hay by oat straw. The results, however, were not satisfactory and led to the conclusion that, in fattening young cattle, hay of a good quality is absolutely necessary, even though the quantity may be limited. (*Züchtungskunde*, Gottingen, 1932, Band 7, Heft 5).

Sheep.

THE POSITION OF SHEEP BREEDING IN FRANCE. SUGGESTIONS FOR ENCOURAGEMENT. — In the *Recueil de Médecine vétérinaire* of the Alfort School (1932, vol. 58, No. 4), Prof. Paul DECHAMBRE gives a most interesting summary of the development of sheep-breeding in France, followed by certain suggestions relating to the general policy of this industry. According to the writer the two most important points are: preservation of the local breeds and the diversity in methods of breeding and rearing, in accordance with proper adaptation to environment. The particular form which sheep-breeding should take varies according to the region under consideration. In

regard to the principal breeding methods the writer distinguishes between : — (1) extensive breeding, in the southern regions ; (2) intensive breeding in the central, northern and western regions, where there is abundant pasturage.

In the Southern regions there are three principal methods of breeding : — (1) for *meat production* with improved local breeds, pure-bred or with only little cross-breeding ; it is advisable for breeders to divide the work, some devoting their attention to production of the young animal, others rearing it in the later stages and carrying out the final preparation ; (2) for *milk production*, for which are required local breeds with definite and well-known aptitudes ; here again it will be necessary to work by selection ; the rams of a meat-producing breed are required and the writer is of opinion that the introduction of foreign breeds is superfluous ; (3) for *production of sucking lambs* for which a ram of improved breed may well be crossed with a ewe of a local breed.

For the Central, Northern and Western regions the two following methods are in the writer's opinion the most suitable : — (1) obtaining large mutton sheep from early maturing breeds ; this may be done by means of flock management, or by intensive fattening of young sheep, or by purchase of ewes that are being sold off ; (2) employment of ewes of improved breeds so as to obtain offspring to be prepared as fat lambs.

The writer adds that these methods will also tend to increase wool production, while the total diminution in the number of sheep will be partly counterbalanced by the rapid development of the animals and the reduction in the period of rearing.

IMPROVEMENT IN SHEEP-BREEDING IN BULGARIA. — With the object of improving the Bulgarian breeds of sheep the Bulgarian Minister of Agriculture has recently entered into an agreement with the Hungarian Export Institute by which the latter undertakes to supply some hundreds of breeding animals of the Hungarian merino breed during each of the next twelve years

(From the Bulletin of the International Commission on Agriculture entitled *Der Internationale Vieh-Markt*, Berlin, 1931, No. 4).

SHEEP-BREEDING SCHEMES IN MANCHURIA. — According to a communication from the French Chamber of Commerce in Japan, published in the *Union Ovine*, 1932, No. 4, some Japanese capitalists are at present examining the possibilities offered by Manchuria for sheep-breeding. It appears from this statement that the Japanese intend to increase the stock of 9 million head of sheep at present raised in Manchuria and to establish three large breeding centres containing 30 million sheep. With the increased amount of wool thus obtained it is intended to reduce wool imports into Japan, now estimated at 50,00 tons annually.

Pigs.

BREEDS OF PIGS IN BELGIUM. — In a report presented to the 14th Annual Congress of the National Federation of Belgian Agricultural Unions, held at Brussels in March 1932, M. G. VERPOORTEN dealt with the question of the most suitable breeds of pigs for Belgium. Those most favoured at present are the Middle Yorkshire, the native pig improved and the Flemish pig. These breeds, chosen before the war for production of fat, are not quite suitable for producing the lean pork most in demand

at present, and most remunerative to the breeder. As there is in the country no breed apt to produce lean meat the Stock Breeding Service of the Ministry of Agriculture has advocated for the past four years the importation of two breeds of pork pigs: the "Great Yorkshire" and the improved German ("verdeltes deutsches Landschwein"). These two breeds have given satisfactory results, the improved German pig especially so on light soils where raising and fattening are carried on over wide tracts of country and the animals must perforce depend mainly on coarse feeds. The "Great Yorkshire" may be raised on all kinds of land but is particularly suitable for heavy, damp soil where raising in the open air is not possible throughout the year. It is a more difficult feeder than the Flemish pig and is also more sensitive to environment. Thus, with poor management the results are absolutely deplorable, while with scientific feeding and proper attention it is possible to produce specimens of excellent quality. In the hands of competent breeders and fatteners and in favourable surroundings, the "Great Yorkshire" will give better results than the improved German pig.

Fur-Producing Animals.

COMPOSITION OF FOX MILK. — The organo-leptic characteristics and the average composition of the milk of a silver fox with abundant fur after four weeks of lactation were: Colour yellowish — Consistency of cream — Slight odour of bitumen — Average percentage of content of five samples: Water 81.87 — Total of solid substances: 18.13 distributed as follows: Protein 6.25 — Fats 6.30 — Lactose 4.56 — Ash 0.96 (75 % of which consisted of lime and phosphates).

It appears from this analysis that foxes' milk is much richer in protein, fats and phosphate of lime than other milk. This explains the high mortality among foxes reared on cows' milk or that of other animals, a fact well known to breeders of silver foxes.

(From *Annales des Falsifications et des Fraudes*, Paris 1932, No. 2).

E. M.

AGRICULTURAL INDUSTRIES

Notes.

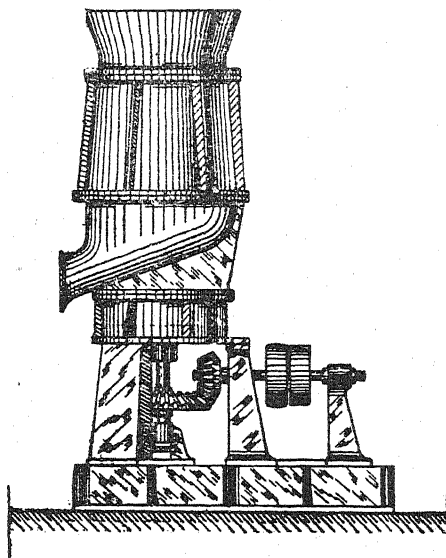
INDUSTRIES BASED ON VEGETABLE PRODUCTS.

THE A. GREGORI OLIVE-CRUSHER (CONTINUOUS SYSTEM). — This crusher has been examined by the technical and practical Services of the Colonial Institute at Marseilles and of the Olive-growing Institute at Porto-Maurizio (Italy). It was used also during the last olive season by the Co-operative Society at Mouries (France) where it gave the most satisfactory results.

The chief advantage of this machine are: (1) It stands perfectly firm in a socket, thus saving the expense of mounting — (2) As its weight is comparatively small it may be easily transported from one place to another — (3) It is easily kept in order and necessitates no special mechanical skill — (4) Its output is considerable; it is capable

of crushing 500-600 kg. of olives per hour — (5) Labour and motor power required for working it are very moderate, the power being 2 H P — (6) It gives a very fine and regular paste far less acid than that produced by the common grindstone — (7) It gives equally satisfactory results with all oilseeds.

(From *La Revue oléicole*, Nice 1932, n^o. 307).



The A. GREGORI Olive-crusher

OLIVE OIL, AS A LUBRICANT. — Many persons interested in this question in France, Spain and Italy are now experimenting as to the possibility of using hydrogenated olive-oil as a lubricant. During the present crisis the oils extracted by solvents and those of inferior quality and unpalatable taste may be employed more advantageously in this direction than in the manufacture of soap. At the same time the previous desulphuration treatment of the oils before hydrogenation renders the use of sulphide oils less profitable than that of oils extracted by other solvents or by displacement by means of water and saline solutions. The oil, when treated with hydrogen, becomes reddish yellow in colour, with green shades. This treatment increases the viscosity from 7-8° Engler (50 C.) to 35-40° Engler, and the density from 0.915 to 0.940. The very high combustion point makes it possible to use hydrogenated olive oil in internal combustion motors, air compressing pumps and transformers. There is 50 % less smoke given off on combustion than in the case of mineral oils. Its capacity for conducting heat is 25 % less which increases its power as a lubricant since it delays the heating of the oil. The residue after combustion is more porous and more easily detachable than that of mineral oils. The loss of weight by evaporation at 250 C., is 0.30-0.35 % as compared with 2.1 - 2.5 % in mineral oils. Hydrogenated olive oil may be conveniently diluted with petrol; its capillarity, which is 20 % stronger, leads to a correspondingly improved yield in the wicks. As a transformer oil, its resistance to rupture is at least equal to that of the best mineral oils known.

Constant principles of olive oil as compared with those of mineral oil.

CONSTANTS	Mineral oil	Olive oil
Density at 15°	0.85 to 0.95	0.91 to 0.94
Ignition point of the gases	over 125°	260° to 290°
Ignition point of the oil	over 180°	275° to 330°
Viscosity (Engler) at 50° C.	less than 3	7 - 9
Loss of weight (after 5 hours at 100°)	less than 0.2	imperceptible
Freezing point	- 5°	- 5° to - 6°
Tendency to deposit after:		
heating at 150° during 5 hours	none	none
" " " 50 "	traces	"
" " " 125 "	0.15 %	"
Acidity (expressed in olive oil acid)	0.1	0.4
Content of alkaline salts	none	none
" sulphur	"	"
" resin	"	"
Resistance to rupture between two balls of 11-12 mm. at 5 mm. distance apart	above 34 000 V	38 000 V

(Bulletin des Matières grasses, Marseille 1932, No. 3).

ECONOMIC ACCUMULATION OF COLD BY MEANS OF THE "ACCUM FRIGO", INVENTED BY FAVIER AND THIBAUT — The "Accu Frigo" solves one of the most important problems with which those responsible for cold-storage have to deal, that of maintaining an unvarying temperature in cold chambers, which hitherto has never been satisfactorily handled. By means of this apparatus the warmth of melting ice is utilised (80 frigories per kg. of ice) thus making it possible to accumulate a large number of frigories in a small volume; moreover, owing to a judicious mixture, the freezing temperature may reach -10° and even -18° and -20° . In melting, the ice radiates its frigories at the desired temperature. The most satisfactory results have been obtained in the preservation of fish, meat, etc.

The "Accu mixte" includes a certain number of pipes with flanges calculated so as to counterbalance the normal hourly losses. These pipes are preferably placed on the upper part of the refrigerator, thus ensuring the best conditions for the ventilation.

The desired number of accumulator batteries are placed below, charged with a mixture which freezes at the temperature selected. These store the excess of available frigories, during the functioning of the compressor, under the form of ice frozen at a selected temperature, with the result that when the compressor stops working and the "Accu" is compelled to restore the frigories, the cold chamber will remain at the desired temperature.

This apparatus is exactly comparable to an electric accumulator and to the plug batteries which utilise either the excess power during the working of the dynamo, or the unused night current offered at a much reduced rate.

Its use for refrigerating waggons, lorries, etc. is very interesting. It is sufficient to introduce the quantity of "Accu Frigo" elements necessary to the maintenance

of the desired temperature for a period of 30-40 hours, without installing refrigerating machines, in the case of trains, lorries, fishing boats, etc.

(*La Revue Générale du Froid*, Paris, 1931, No. 12, p. 325-328).

NEW METHOD FOR THE INDUSTRIAL TREATMENT OF LATEX. — In M. Schweizer's scheme the installation forms a single block. By means of an inclined slope the trucks conveying the latex reach the height of the first receivers, *viz.*, about 3 m. After the first straining the product passes into other receivers; after dilution with water the latex passes through a very fine sieve after which it is distributed among reservoirs placed 60 cm. above the ground. Here it is submitted to the action of an acid proceeding from a reservoir the same height as the sieve. These reservoirs contain as many vertical sections as are required to reduce the volume of the product of the coagulation of the latex. The leaves of rubber become flattened at the edges, and thus enter the rolling machines more easily.

When coagulation is finished, water is introduced into the receivers under pressure so that the latex rises to the surface. The product may then be readily pushed on to a distributing platform, whence it passes into the different rolling machines. Drying is the only operation which is performed in a separate apparatus. After drying, the latex is treated with paranitrophenol, in order to prevent it from becoming mouldy.

Advantages of the process: Superior quality of the rubber. Considerable reduction in labour. Cost of production much less than that of products obtained by the ordinary methods.

(*Les Produits coloniaux et le Matériel colonial*, Marseille 1932, No. 94).

RETING OF FIBROUS PLANTS. — The experiments carried out by M. A. MAKRIKOV on fibrous plants and in particular on flax, have led to the following conclusions:

Under the action of a stimulating anaerobe (*Granulobacter pectinivorum*) the pectins do not finally give products of oxydisation; formation of butyric and acetic acid is observed, with a slight deposit of carbon anhydride and hydrogen. By fermentation, under the action of a stimulating aerobe (*Pectinobacter amylophilum*), the greater part of the pectin is transformed into completely oxidised products, 25 % only being transformed into acetic and formic acids. The high oxidising capacity of stimulating aerobes causes oxydisation of the pigmentary substances and extractive matters of flax, together with blanching of the fibre, while with stimulating anaerobes the fibre remains black. The use of the *Pectinobacter* makes it possible to ret the flax several times in the same liquids, thus increasing the strength of the retting up to a certain intensity which is maintained for a long period and afterwards decreases. This repetition of retting in the same liquids is only possible with *aerobic* stimuli of the pectic fermentation with fixed biochemical characteristics.

(*Zentralblatt für Bakteriologie*, 2. Abteilung, Jena 1932, No 85, p. 339-348).

INDUSTRIES BASED ON ANIMAL PRODUCTS

PRODUCTION OF HYGIENIC MILK IN URUGUAY. — The new municipal regulation regarding the milk production in Montevideo enacts, among other rules, that only milk which does not coagulate when mixed in equal parts with alcohol at 70°, and which contains a proportion of microbes not exceeding 1.5 million per cm³. of the milk, shall be admitted to the "Usinas de Pasteurización".

The writer makes suggestions regarding the production of milk in the most favourable hygienic conditions possible and describes the various operations necessary. By means of an example in connection with the United States, he calls attention to the fact that the milking-machine is the *fundamental factor in the production of hygienic milk*.

After a description of this machine, the writer deals successively with the following subjects: Dairying utensils — Washing and sterilisation of these — Preservation of milk — Dairy cow testing, etc.

(PEDRO MENÉNDEZ LEES, Ing. Agr., Profesor de Industrias agrícolas, in *Producción de leche higiénica*, Montevideo 1929, 37p., numerous phototypes, graphs, etc).

DEVELOPMENT OF THE DAIRYING INDUSTRY IN URUGUAY. — In a lecture delivered during the Congress of the Rural Federation (Minas, Uruguay, 1930) M. P. MENÉNDEZ LEES, professor of agricultural industries, showed by the aid of statistical data the ever increasing consumption of milk and its derivatives throughout the world. He then dealt with the measures taken in the various milk-producing countries, such as the United States of America, France, Germany, Switzerland, the Netherlands, Denmark, England, Argentina, etc., for the purpose of increasing both the production and the consumption of this product.

In the United States, the Netherlands, New Zealand, Switzerland, etc., 96 % of the cheese and 80 % of the butter is now made in factories or modern co-operative establishments, whereas formerly the whole of the manufacture of cheese and butter was carried out on the farms.

M. LEES then analysed the work accomplished in Uruguay during the last few years in connection with the dairying and derivative industries. Schools, factories and co-operative establishments had been formed in various parts of the country, the most noteworthy among which were the "Escuela de Práctica y Campo Experimental" at Paysandú, the "Escuela del Salto" (San Antonio), the "Escuela de Banado de Medina" in the Department of Colonia, and other establishments at Salyago, Parada Esperanza, Salto, Tarariras, Paso de los Toros, etc. In addition, various laws and regulations relating to the sterilisation and the hygiene of milk have been issued.

The lecturer gives a detailed account of the English market: which is supplied in great part by importations from New Zealand, 76 million kg. having been received during 1926, and from Canada, which sent 54 million kg. in that year. He is of opinion that England is capable of absorbing a large proportion of the cheese and butter produced in Uruguay.

It is clear that great progress has been made by Uruguay in the development of the dairy industry, a progress which should make it possible for that country to compete on the international market with the principal producing states.

(PEDRO MENÉNDEZ LEES: *Evolución de la industria lechera nacional*, Conferencia pronunciada en el Congreso de la Federación Rural, Montevideo, 1930: 24 pages, 14 phototypes, comprehensive statistical data).

WATER CONTENT OF URUGUAY BUTTERS. A COMPARATIVE STUDY OF THE GERBER, BRUNO AND GRAY METHODS FOR ASCERTAINING THE PROPORTION OF MOISTURE IN BUTTER. — As a consequence of investigations, P. MENÉNDEZ LEES, agricultural engineer, and H. P. TOMEIO IBARRA noticed the variability in the proportion of moisture contained in the Montevideo butter. They therefore proceeded to make further research in this direction.

In their work entitled "Contenido en agua en mantecas del Uruguay. Estudio comparativo de los métodos Gerber, Bruno y Gray, de dosificación de humedad en las mantecas" (published in the *Revista de la Facultad de Agronomía*, Montevideo 1931, No. 5), the writers show: (1) the results obtained from measuring the moisture contained in 85 samples of butter for the most part coming from the departments of Uruguay and analysed during the period July-November 1931 — (2) the comparative results obtained by means of various rapid analytical methods suitable to the factory testing technique (GERBER, BRUNO, GRAY).

The analytical data contained in the following table have been obtained by evaporation of the water in the samples of butter at 100° C. up to constant weight after two successive weighings.

MONTH	Butters analysed	Less than 16% of water	Over 16 % of water
June	11	8	3
July	8	6	2
August	12	10	2
September	14	9	5
October	16	11	5
November	24	12	12
Totals . . .	85	46 65.89 %	29 34.11 %

The above figures show that 34.11 % of the butters analysed contain a larger proportion of water than is allowed on the principal markets of the world. The "Chair of Agricultural Industries" of the Agricultural Faculty of Montevideo, is preparing a hand book giving the necessary instructions for the manufacture of butter containing less than 16 % of water.

For the comparative study of the industrial methods of ascertaining the water contained in butter the following methods have been tested: (1) GERBER'S, (2) BRUNO'S (3) GRAY'S. According to the writers the Gerber method has given the best results and admits of the fewest mistakes as regards the technique of manufacture and testing.

The writers also discuss the standards of the different countries, including France, the United States, Denmark, Belgium, the Netherlands, Italy, Australia, etc., as regards the water content of their butters. An account is added of the technical methods used for taking samples of butter, describing, in this connection, the "Wedge" and the "Trier" methods. (ELLENBERGER and GUTHRIE, U. S. A.).

This work, profusely illustrated, is a full account of all that has been accomplished in Uruguay in this field.

A. P. & G. S.

FORESTRY

Recent Practice in the Treatment of Wind-damaged Forests.

Amongst measures designed to relieve the present depression in forest production the control of wind damage takes a by no means insignificant place. Recent practice in various countries—particularly of a technical order, of which the benefits are a matter of the future—with a view to preventing damage was discussed in the preceding number of this Bulletin (1).

Disaster may, however, despite all preventive measures, come unexpectedly and at any time, and the most important thing from the point of view of relieving the depression is to be thoroughly acquainted with the methods of treating the windfallen wood as well as the devastated area. Operations subsequent to the disaster should be based on the principle that measures adopted for the treatment of the timber should not only be such as to diminish the losses of the owner at the time but still more such as to bring about the reestablishment of the forest and the securing of future income. The extent of the damage determines in each case the measures most suitable for the attainment of the objects in view. The study of the losses occasioned to forests by the storms of recent years at a period when the depression was already well advanced gives a very useful indication of the steps to be taken.

RAPID COMPLETION OF CLEARING. — It is in the interest not only of the owner but of the community to cut as rapidly as possible the areas damaged by wind: (1) in order to facilitate the rapid reafforestation of the devastated area — (2) in order to avoid disease — (3) in order that the value of the windfalls and of the adjacent still standing trees should not rapidly deteriorate.

CARRYING OUT OF THE CLEARING. — When forest has been damaged by wind it must first of all be ascertained whether it is sufficient to remove only the fallen trees (including, of course, trees injured and affected in any other way) and to replace them by rapid-growing species suitable to the locality or if it is preferable to exploit at the same time the wood left standing. The choice of policy will always be determined and indicated by the extent of the damage. Damaged or isolated trees should in any case be cut, but those that are not too markedly isolated by the storm should not be too quickly removed. Experience has shown, according to WEEDE (Austria), that trees that remain standing after a storm are often the most resistant and consequently the best protection against subsequent wind and snow-damage. An under-storey of wind-resistant species (beech, oak and fir, for example, under spruce, as recommended by WEEDE) must, therefore, first be formed and the trees must not be cut until this understorey has made adequate growth. The capacity of the trees to resist shade and wind should also be considered (PERRY, United States). Where the

(1) See *Monthly Bulletin of Agricultural Science and Practice*, 1932, N. 7, pp. 299-307.

trees belong to wind-resistant or light-loving species all the good individuals must be left standing and the stand subsequently managed as a mixed-age forest.

In certain countries windfallen timber is not cut except where clearings are made (United States, Belgium) but if the windfalls are very numerous and the wind-damage has been considerable or if the trees still standing are exposed to new dangers or are likely to become centres for insect pests, the wood must be cut down to the ground after removal of the windfalls and the area must be entirely replanted. When such a cut is necessary, it is advisable (KLIMESCH, Austria) to make the cut in a straight line or in some other convenient manner skirting the intact stands, should the wind have made too irregular a line of contact.

As regards the actual clearing the following recommendation are worthy of attention :—

(1) A general estimate of the area devastated and of the volume and value of the wood to be cut should be made prior to all other work. The proportion and value of the workable wood should also be considered;

(2) Simultaneously with the felling the roads necessary for clearing must be put in good condition. The construction of other transport facilities (forest railways, tramways, chutes, etc.) must, if necessary, be carried on continuously. RUTH (Austria) has found telepheric lines satisfactory where the devastated area was situated on one bank of the Salzach and the railway on the other;

(3) In engaging labour care must be taken not to overestimate the capacity of the labourers since felling on a wind-damaged area is much more difficult than normal cutting. According to a quite recent study by BARTH (Germany) on the occasion of the simultaneous cut of a wind-damaged area and of another where all the conditions were similar previous to the storm, cutting one cubic metre of long timber on a normal area required on the average 106.6 minutes of labour-time while cutting one cubic metre of wood of the same type from the damaged area required 137.2 minutes. As regards firewood, clearing takes longer in the case of windfallen material but not to any very serious degree. For the complete operation wages about 10 per cent. higher had to be paid for the wind-damaged area than for the normal cut;

(4) It is preferable that the work should be carried out centripetally and that it should as far as possible follow the direction of the wind that caused the damage, that is, that it should run from the stumps to the tops of the trees lying on the ground;

(5) Extensive damaged areas should be divided by roads into a number of sections for clearing so that several gangs of workers can be used simultaneously;

(6) In cutting windfallen trees of which the roots remain partially in the ground, care must be taken that in sawing the prolongation of the roots does not cause splitting of the lower parts of the trunks. KLIMESCH recommends the use of an appliance called the *Nützholzretter Würgbandage* or bandage for saving workable wood. BARTH would avoid such splitting by cutting all roots remaining in the ground before beginning to saw the trunk;

(7) It is very often recommended that the trunks should be peeled as a measure of protection against insects. STRACHOTA (Czechoslovakia) leaves 20 cm. of bark on each log to protect it against injury and especially from splitting during transport. On spruce logs after peeling in winter, the same authority left three bands of bark and in winter even four or five on the heavier logs, as protection against splitting by frost. This method has given good results in practice: the trunks dry gradually and are also resistant to insect attacks;

(8) As regards choice of storage many precautions must be taken, especially if there is no hope of selling the windfallen wood within a short period and it must be kept for any considerable length of time. Too large or too close piles should not be made as they prevent proper aeration and on wet soils supports must be used (STRACHOTA).

REPLANTING. — The immediate restoration of the forest cover on devastated areas is expedient, not only because to leave the ground unutilized for a long period augments the losses of the owner through delays in the growth of the subsequent stand but also in order to protect the soil. The denuded soil must be occupied as quickly as possible by suitable live cover so that it does not remain for a long time bare or covered with dead wood and so that weeds do not gain ground.

Since it is seldom that a promising young thicket survives on wind-damaged areas and that a natural sowing by trees on the edge of the area or by adjacent undamaged stands is by no means a certainty, artificial replanting is generally followed as in the afforestation of new areas, if regeneration appears improbable.

Whether this artificial replanting should be carried out from seed or from planting and what species should be employed depends always on local conditions. In carrying out any work of this order, the known advantages of mixed stands from the point of view of protection against subsequent wind damage must in any case be carefully borne in mind.

It must be assumed that the costs of replanting are generally higher than the replanting of a normal area, since, in places where the wind has uprooted the trees, the holes must be filled up and the devastated area must in general be levelled. If, however, the stumps remain in the ground planting must be done between them as their removal is too costly a business.

If it is merely necessary to fill up space, the gaps should be planted with shade species and species of rapid growth, able to thrive under the cover of the adjacent trees. If serious damage has been caused to a pine plantation, the opportunity should be taken to introduce an understorey of broadleaved species. Where an opening appears in a spruce plantation, a belt facing the dangerous winds should be prepared behind it in the interior of the block (as for example, in Belgium) so that, when the opening reaches this point, the specially prepared belt may, by forming a protective curtain for the stand behind, arrest the damage. Especially in stands of fir with growing underwood the larger gaps should, according to GOLDBERSEN (Germany), be prolonged in the dominant direction of the wind in order to facilitate its passage.

Branches that are merely broken must be lopped off.

INSECT ATTACKS. — Among measures against insect pests those recommended by TRÄGÄRDH (Sweden) are deserving of special note. His principal recommendations for protection against such attacks in the stands devastated by the storms of July 1931 and the winter of 1931-32 include the following: —

(1) Should it be impossible to remove in due time the larger and more valuable of the windfalls, they should be collected in large piles in moist shady places and covered with clods or moss. There is reason to believe that the trunks so treated will not be attacked by insects except in the upper sections and that in any case the development of the insects will be checked so that a new generation will appear in the course of the summer;

(2) Where the timber blown down consists of pure stands of fir and Scots pine and a choice is possible, clearing should begin with the latter, since *Hylesinus piniperda* generally swarms three or four weeks before *Ips typographus*;

(3) An effective precaution against insect damage is immersion in water;

(4) Trunks with dimensions and thickness of bark suggesting the probability of attacks of *Hylesinus piniperda*, *Ips typographus* and "tallbocken" should during the summer be examined frequently in order that the severity and progress of the attack may be approximately estimated. If it is found that it is very serious and that favourable weather has accelerated the development of the larvae, it is necessary to begin peeling before the pupal stage is reached and wherever possible the bark should be burnt;

(5) Overturned trunks that may remain alive throughout the summer should not be cut out before the autumn;

(6) A careful and regularly repeated inspection of the trees still standing as well as of neighbouring stands is absolutely necessary throughout the summer;

(7) Owing to the great importance of local weather conditions on insect development, work on the areas where this development takes place most rapidly should first be taken in hand and areas exposed to the north and west should be left to the last.

All these measures recommended and put into practice in Sweden may be and are adopted at least in part in other countries where wind damage is frequent. Where private forests are attacked the intervention of the public authorities is often necessary. In Austria, for example, following on the devastation caused by the storms in the autumn of 1929, when the attacks of insects (*Ips typographus*, *Pityogenes chalcographus* and *Hylobius abietis* are the most dangerous in Austria) occurred, the public authorities requested forest owners to set up traps immediately, to begin peeling and to accelerate the work so as to finish by the end of March at latest. It was necessary to burn the bark, even when it appeared to be free from infestation, as it was borne in mind that insects frequently infest trunks that are to outward appearance sound. The greater the acceleration of control measures, the greater the security of eliminating or preventing damage.

In carrying out the work of regeneration either by seed or by planting on areas that have had to be cut over after wind havoc with a view to countering attacks of *Hylobius abietis*, the probable period of egg laying must be taken into account as well as the duration of the development period under the bark

of the trunks and roots up to the emergence of the new generation. This is also the line of argument of TRÄGÄRDH, who gives very useful information on this subject. On the basis of the work of SYLVÉN (Sweden), according to which the life-cycle of *Hylobius* lasts at least two years, TRÄGÄRDH reckons that the appearance in mass of this insect on areas devastated by the storms of 1931-32 will occur in the spring or early summer of 1934. In replanting the cut over areas the young trees must therefore be protected at this period. As the destruction of insects by removal of stumps would at present be too costly, other means of protection must be found. But, since one-year pine and fir is very largely free from *Hylobius* and that older and stronger trees are more capable of recovery after attack, the writer considers that the sowings — if this method of reafforestation has been adopted — should not be made until 1933 at earliest, since the trees that will be one year old in 1934 will then be able to resist attacks relatively well. If, on the contrary, it is necessary to plant, young trees at least two years old if the work is carried out in 1932, at least three years old if in 1933 and at least four years old if in 1934, should be used.

As regards the systematisation of areas where these cuts have been carried out, TRÄGÄRDH states that piles of branches should not be accumulated, nor must the branches be burnt, since it is a mistake to suppose that in this way insects injurious to reproduction are being destroyed. On the contrary, the insects in the branches cause rapid decomposition and transform them into fertilizing material for the soil. The branches serve at the same time to hinder the heavy growth of weeds which is always unfavourable to the establishment of a plantation.

As regards the control of *Hylesinus piniperda*, of which the attacks are more or less serious, in stands of Scots pine and of *Ips typographus* in stands of fir, timely peeling is the most effective measure, according to TRÄGÄRDH, if the windfalls cannot be removed in good time from the forest. Peeling should be carried out on all Scots pine of dimensions greater than 10 cm., and if it is impossible to peel it all, the wood should be barked in belts; the width of the belts remaining not exceeding 5 cm. The lower parts of Scots pine should in any case be entirely peeled.

ECONOMIC MEASURES. USE OF WINDFALLS. — The most serious of the results of wind damage are naturally those of an economic character. The fall in the price of timber due to the excess amount of wind-falls is practically inevitable. There are in addition all the difficulties of obtaining the credits necessary for unexpected operations such as clearing, reafforestation of devastated areas, subsequent revision of management plans and so on. In these conditions State aid, including working credits, provision of labour, facilities for transport and export, etc., may be expected. But the forest owners on devastated areas should themselves do all that is possible under present economic conditions. It is particularly desirable for instance to suspend for a certain number of years all cutting operations that under normal conditions would have to be carried out so as to avoid throwing further timber on the market.

To obtain the largest possible returns from the sale of windfall timber, it is desirable before clearing to study all the conditions of the timber market

(supply, demand, etc. with regard to individual types) and to arrange for the supply of the windfallen wood in such a way that the type most in demand is cut in the largest proportion possible.

As to the time of sale it is a very difficult and delicate matter to advise. It often seems in particular cases desirable to act as quickly as possible so as to sell before large quantities of damaged timber come on the market; but, according to some experts, too great haste is to be deprecated and it is more reasonable to await the passing of the period of excessive supply before selling. In this way too the whole of the income is not realized at the same time.

HUFNAGL (Czeckoslovakia) is of the opinion that with the aid of the returns so obtained, a fund should be established, the interest being utilized to replace the income from the forest that will be non-existent for some decades and to continue suitable management schemes on the devastated areas.

In the case of forests of which the income has generally served the private purposes of the owner only and where sales have not taken place under the usual conditions, the windfallen trees should not, according to STRACHOTA, be sold; on the contrary, they should be preserved in suitable storage places and utilized gradually and only at such a rate that the annual consumption corresponds to the yield from normal annual cuts, which should be provisionally suppressed so long as the supply of windfallen wood lasts.

G. LUNCZ.

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[The author, who is Professor of Forestry at the University of Yale (United States), deals in this volume with the economic problems of forest management for industrial timber production in the United States. Management for this purpose, which has long been established in Europe for both public and private forests, is only beginning in America. Lack of knowledge greatly hinders owners of forests from making their forests pay and the present work, which contains a mass of information on the subject, fills a real gap.

The book has 32 chapters and is in three parts: — (1) The Place of Forest Management in Forestry (eight chapters); (2) Forest Organisation (nine chapters); (3) Forest Regulation (fifteen chapters).

The principal thesis of the book is set out in the first and second parts. The student of forestry in the United States will here find a very clear and concise exposition of the principle of forest economics as concerns his own country in the chapter entitled "The Field of Forest Production". In the third part the author demonstrates clearly the real and practical value of forest management methods. Chapter XXIX. (The Regulation of Wild Forests) deals exhaustively with the chief practical problems of large forest areas in the west of the United States.

The last fifty pages, which give very practical examples of management plans, make this part of the book a useful manual for foresters in the United States engaged in carrying out management and exploitation schemes.

The book contains numerous diagrams, tables and other illustrations; it is provided with a very full bibliography and a detailed index].

R. W.

(*) Work received as a gift to the Institute.

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MONTHLY BULLETIN

OF

AGRICULTURAL SCIENCE AND PRACTICE

GENERAL AGRONOMY AND CROPS OF TEMPERATE REGIONS

Institutions concerned with Agricultural Science and Practice throughout the World.

Amongst the requests for information daily received by the Bureau of Agricultural Information of the International Institute of Agriculture there is one which recurs with particular frequency. From all parts of the world there is a continual demand for lists of research and educational institutions or of specialists in agricultural subjects. The matter is of interest to a considerable number of persons, not excepting the specialists themselves, who require in the execution of their research or the diffusion of their results the collaboration of their colleagues in other countries.

Such collaboration can be successfully established only if there is available a directory of the world's institutions of technical agriculture accurately drawn up and kept constantly up to date. This is the laborious undertaking which the Bureau of Agricultural Information has taken in hand during the last three years, in spite of the difficulties of the present time and the very limited means at its disposal.

The idea of drawing up a directory of the institutions of technical agriculture throughout the world was first conceived as a result of having received the following request from Prof. G. BOUCKAERT, Director of the Agricultural Engineering Station of the State Institute of Agronomy at Gembloux:—

"As I am responsible for the organisation of the Agricultural Engineering Congress to be held at Liège in 1930, in connexion with the celebration of the Centenary of Belgian Independence, I am taking the liberty of asking you to be so kind as to obtain the addresses of the Colleges of Agriculture and the Professors of agricultural engineering in the different countries of the world which are members of the International Institute of Agriculture".

In response to this request the Bureau of Agricultural Information prepared as a result of the enthusiastic work of Mr. H. J. HOFFEN, the agricultural engineering specialist of the Bureau, a first List of Institutes and Research Stations dealing with Agricultural Engineering. This list which was presented at the International Agricultural Engineering Congress at Liège (3-5 August 1930), was unanimously appreciated and at the opening session of the Congress the President, Prof. M. G. BOUCKAERT, warmly thanked the International Institute of Agriculture for its important contribution.

A second edition of the List (121 pages) was published in 1930. A third edition, completely revised and considerably enlarged, appeared in 1932, in the

form of a volume of 178 pages, including the index, in which under the title of the "*International Directory of Agricultural Engineering Institutions*", is systematically arranged information concerning 368 institutions in 47 different countries.

A second list was drawn up later devoted to Institutions dealing with Tropical Agriculture. This work which was successfully achieved by Mr. J. LÉGROS was published in two parts. The first volume of 166 pages containing information relating to 76 countries and comprising a list of over 800 stations, farms and other experimental organisations, official or private, appeared in 1931 under the title "*Stations expérimentales et autres Institutions officielles ou privées s'occupant du développement et de l'amélioration de l'Agriculture dans les Pays chauds*". The work was completed in 1932 by a second volume of 132 pages dealing with "*Institutions s'occupant de l'Enseignement agricole dans les Pays chauds et les grandes Nations colonisatrices*" with details relating to 70 countries.

Next a similar directory of establishments concerned with livestock studies was undertaken. This work will appear at the end of the present year. It will be a volume of about 350 pages, containing information relating to 900 institutions and 2200 experts in 104 countries. This work, which is already in the press, will be entitled the "*International Directory of Animal Husbandry Institutions*".

All these works require an enormous amount of time and care on the part of the compilers. Numerous agricultural specialists with whom the Institute is in touch are asked to collaborate not only in the original preparation of the lists but also in the important work of proof correction.

The work has naturally been carried on with great activity in view of the interest it has aroused among agricultural experts throughout the world and the encouragement received from all sides. We have thus decided to undertake a directory for countries with temperate climates corresponding to that completed for the tropical and subtropical regions. We are aware of the purely arbitrary nature of this division of agricultural countries into tropical and temperate, but the distinction has been necessitated by the preference that the Permanent Committee of the Institute has thought it necessary to accord of recent years to questions of tropical agriculture.

However that may be the preparation of the list relating to the agricultural institutions of temperate countries has been actively carried forward. For a total of 42 countries over 600 files have been formed up to the time of writing and it is expected that the number of institutions about which information will be published in the volume which will appear in 1933 will exceed 1200.

A fifth directory is now in course of preparation. This relates to institutions dealing with dairying, including under this title all which are concerned with the industrial treatment of milk. This work will also be able to appear during the course of the coming year if replies to the enquiries sent out come in rapidly.

If our expectations are realised we shall within a short time be in possession of an accurate and complete directory to the more important agricultural institutions in all countries of the world. The practical interest of this directory is considerable. Nothing illustrates this statement better than an editorial which

appeared this year in the May number of the American periodical "*Experiment Station Record*", headed "The distribution of experiment station publications in foreign countries".

This problem of the foreign distribution of publications of American experimental stations is regarded as of considerable complexity and increasing importance. It necessitates for its successful solution an exact knowledge of the number of experiment stations in the world and of the activities and the size of the staff of each. Efforts have been made in this direction and in 1902 a bulletin of nearly 300 pages was issued under the title of '*Agricultural Experiment Stations in Foreign Countries*'. A revision of this Bulletin treating of nearly 800 institutions was completed in 1904, but since that time it has not proved feasible to keep the work up to date.

"Unfortunately, we read on page 602, *the preparation of a thoroughgoing revision of the bulletin itself after the lapse of more than a quarter century of unparalleled development of agricultural research institutions in nearly every country of the globe has now become a project far too elaborate for consideration under existing conditions, despite its admitted value for many purposes*".

The writer of the article then mentions in the following terms the initiative in the matter taken by the Institute, but he evidently is aware of one only of the publications which have been mentioned above, the first of the two volumes dealing with Experiment Stations in Tropical Countries:—

"An attempt to meet in part the need for information of this sort has recently been made by the International Institute of Agriculture at Rome through its publication of a handbook entitled *Stations Expérimentales et autres Institutions Officielles ou Privées s'occupant du Développement et de l'Amélioration de l'Agriculture dans les Pays Chauds* (E. S. R., 66, p. 88). This handbook lists over 800 institutions in 76 countries, and gives for many of them brief notes as to their organisation, area, and field of operation. As the title implies, however, it is regional in scope and thereby restricted in direct interest for this country mainly to the southern tier of stations. It is also uneven in treatment as regards the various countries, apparently in many cases because of difficulties encountered in securing the necessary information. Nevertheless for the Tropics in general, it has assembled a large amount of data nowhere else available, and a revision, which is now said to be under way, will doubtless in due time provide opportunity for a more complete presentation".

There is no doubt that the work undertaken by the Bureau of Agricultural Information exactly corresponds to the desire for information so clearly shown by American experimental workers. It thus has seemed of interest to show briefly the practical import of the work and its possible future developments. For the future these lists now in course of publication will form a valuable link between the agricultural experts of different countries.

GEORGES RAY

Chief of the Bureau of
Agricultural Information.

Genetic mutations produced by electro-magnetic induction and X-rays.

Of the mutations induced by the writer's method — which differs somewhat from those utilising ultraviolet rays and the penetrating radiations of X-rays and radium — Professor MONTEMARTINI (1) has spoken in this Review, in an account, necessarily constructive, of the results of the writer's works from 1911 to 1924.

THE PRINCIPLE. — Physico-chemical conceptions are steadily gaining ground in biology in spite of preconceived anatomical ideas, still widespread, which stop analysis at 'units' of a microscopic order, whereas the former tend to unify living and non-living matter and the laws which govern them. The physicist adopts a common unit for all matter, the molecule. In liquid phase, as is the case in biological phenomena, the size of the molecules varies greatly and the 'fields of force' which determine their stability and aggregation are therefore complex.

While the biologist is persuaded by his experimental results to consider active life as the arrester and promoter of dynamic force, the physicist regards vital aggregation as a chain which, in accordance with the measure of growth, binds into an increasingly firm structure that which he regards as the element, the molecular particle. The molecule, according to physical chemistry, has its maximum freedom of movement only when it is free in a biologically inactive solution, at the mercy of the thermic impulses of the environment. With life a relatively static state of matter begins.

The writer's point of view is that of the physicist who, in the gradual and accumulative process of the growth of a cell and of the elements which compose it — the latter increasing until nuclear division is produced and changing position with the slowing down of functional activity — observes a change and interchange of chemical elements. These do not arrive in a mass; they do not form suddenly either chromosomes or plasma. Biogenic work is in action well before any structure perceptible by the ultramicroscope is formed. It will be shown below that, even in an electrogenetic sense, a whole tangle of suggested hypotheses becomes unravelled without difficulty, and remaining within accepted concepts, *when it is agreed to regard the molecular particles as the building elements of every organic structure.*

Among these particles only one distinction is necessary, in conformity with their nature; that is, to separate those which are electrically 'compensated' from those which possess 'electric polarity'. It is useless to think of obtaining scissions within the molecule, at any rate by the action of formidable forces, for in the case of the biological molecule the force must be applied from outside. Nor can it be admitted that even from outside it is possible to act with ordinary

(1) MONTEMARTINI LUIGI, The Electrogenetic Laboratory at Belgirate and the Methods proposed by ALBERTO PIROVANO. — *International Review of the Science and Practice of Agriculture*, Rome 1925, Vol. III, No. 1, pp. 10-16.

electrical methods on molecular particles so as to obtain displacements, even supposing the greatest possible liberty of movement to the particles in solution. But an electro-magnetic action, exterior to the inner biological structure, may cause the displacement of polarised molecular fractions (ions).

It is on this possibility that the theory and experiments of the writer concerning 'ionolysis' are founded, but this theory is outside the scope of this article.

Here it will suffice to say *that a polarised elementary particle when on the point of taking up a specific position within a biological structure, may be diverted or pulled from its natural path by means of an electric (or moto-magnetic) force acting on the electric charge which gives it polarity.*

A particle diverted or displaced by such means is therefore a building element that the artificial electric action *sets out of position* and may give rise to a modified biological structure or mutation.

EXPERIMENTAL METHODS. — It is not necessary to show here that electricity, whether static or dynamic, has no effect comparable to the enormous quantity of energy (also electric in nature though vibratory in form) used by plants directly and by animals indirectly. In fact biologists have worked of recent years and are still working to produce mutations by means of artificial vibratory electro-magnetism (X-rays and γ rays of radium). VERNONI and HERTWIGS (1910) were among the first to take up the question.

These penetrating waves lend themselves with difficulty to a compromise between the biological hysteresis, with its tendency to maintain the specific characters, and the actions producing infinitely minute disruptions that are caused in the wonderful harmony of life by short-waved electro-magnetic vibrations.

If the electro-magnetic oscillations of the normal environment (light and heat), which have a wave-length of from 3 to 0.36 microns, are regarded as in accord with life it is seen that the X and γ rays fall into a class of a 1000 times lower order. Their energy, their ionising power and the other well-known characteristics of short wave-length rays explain the difficulty of the above mentioned compromise.

As a result of the studies of RIGHI the writer was led to wonder whether electro-magnetic induction (the effects of which are so well observed in rarified gases traversed by a current, with deviations from the trajectories of the gaseous filaments and which culminate in the magic phenomenon of the virtual anode) would not have some effect also on molecules and more particularly on ions which, although moving less easily in the liquid phase, are the elementary vectors of organic metabolism.

Experimentation by the writer's method thus requires only the simplest apparatus: electro-magnets traversed by an alternating current and, of course, adapted to the power and frequency to be used. The greater the frequency (periodicity) the greater at equal power is the intensification of induction. Scarcely appreciable at 20 periods per second, induction becomes optimum, with present provisions of construction, at 500-600 periods, then gives a decreasing yield until 4000 periods. These inductions being estimated as of very low frequency their 'wave' is given a length of from 15 000 (20 periods) to 75 kilometres (4000 periods).

The method in question thus utilises electro-magnetic oscillations which as regards frequency are exactly opposite to X and γ rays.

As has been mentioned above these slow oscillations have a much less injurious action than X-rays and radium. They exercise a stimulating effect on the contrary on plant tropic movements which is maximum at about 80 periods, and are still clearly stimulating up to about 300 periods. The same applies in the field of genetics when electro-magnetic induction is made to act on pollen.

On the ovary, on the other hand, lesions, abortion and deficient nutrition are generally produced even with very low frequencies.

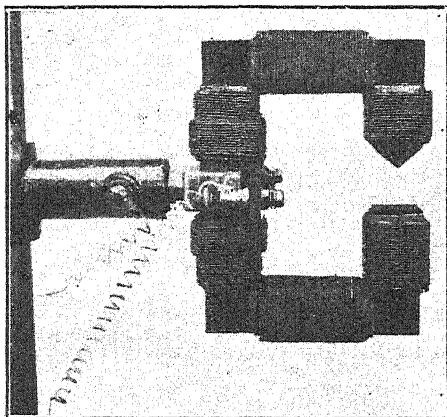


FIG. 1. — Electro-magnet of the type used for treating the anthers of *Cucurbita*.

In figure 1 is shown a model of the electro-magnet used in the experiments here described. Each electro-magnet is provided with insulated conducting coils varying in number according to the frequency to be used.

Between the poles there is a space of 3 centimetres in which there is uniform distribution of the magnetic flux and consequently of the electro-magnetic induction, resulting from a suitable blunting of one pole. Between these poles may be placed a flower bud to open and ripen its pollen. Celluloid cooling chambers in which water is circulating maintain the interpolar space at the same temperature as the surrounding air. With this type of electro-magnet the inductive force (B) is low, but in the case in question the best results are obtained with low power and prolonged action. With the electro-magnets used for the treatment of loose pollen (ripe pollen shaken from the anthers) induction values 12 times higher are obtained; but it is very easy to produce lesions and difficult to obtain mutations when too high power is used. The original method (1) has been gradually modified on these lines.

For the experiments here briefly described an electro-magnetic apparatus with equal power absorption (300 watts) and equal size and section of core was used.

(1) PIROVANO A., *La mutazione elettrica delle specie botaniche*. Milano, 1922, Ulrico Hoepli ed.

The evening before the opening of the anthers a bud of a male flower of *Cucurbita Pepo* var. *cucurbitella* was placed between the poles of the electromagnetic apparatus described. In order to compare the result with those obtained by a method already known pollinations were made also with flowers treated similarly in the bud with X-rays (4.5 Benoist units) with a constant charge of 5 milliamperes for a time sufficient to supply 380 U. R.

MATERIAL USED. — The plant chosen for the experiments described below was the species *Cucurbita Pepo* and the most stable variety of it known to the writer, the variety *cucurbitella*, commonly called the 'zucchetta romanesca' or little Roman marrow, which is widely cultivated here and has been selected over a number of years. This type is well fixed, very hardy and even in industrial crops is never known to have been polluted by foreign pollen.

The resistance of the variety to cross pollination is probably due to two causes: (1) its early flowering, which allows of the fruit setting before other varieties which may be in the vicinity are in flower and (2) the absolute impossibility, as has been experimentally proved, of crossing with *Cucurbita moschata* and *C. maxima*. The pollen of these species has absolutely no effect on *C. Pepo* var. *cucurbitella*.

In any case, limiting the examination to the plants which were to serve as parent plants the most perfect homogeneity was found. The female flowers were isolated the evening before the anthers opened by means of small bags of a fine metal gauze which prevent the entry of pollinating insects. It was very rarely that an ant succeeded in getting into the flower, but careful inspection excludes the possibility of its having succeeded in carrying pollen on to the stigma.

The male flowers were detached from the plant at 6 p. m. and with the stalk placed in water they opened the following morning at 8 a. m. when they had been submitted to treatment for 14 hours and were used immediately for pollination. After pollination the protective bags were replaced and left at least until the following day.

At low frequencies setting is readily effected and gives good results, but repeated experiments have shown that it is not successful at frequencies of over 900 periods. In the latest experiments it may be that the excessive drought prevented setting, watering having been of little avail during the very hot weather of 1931.

EXPERIMENTS. — The number of experiments has been limited because many of the parent plants were destroyed as not being absolutely true to type in their development. In the flowering season (July 1-20) the temperature in Rome showed the following variations:—

	Maximum temperature	Minimum temperature	Mean temperature
July 1 - 10	36.1°	16.0°	27.4°
July 10 - 20	35.1°	18.2°	27.2°

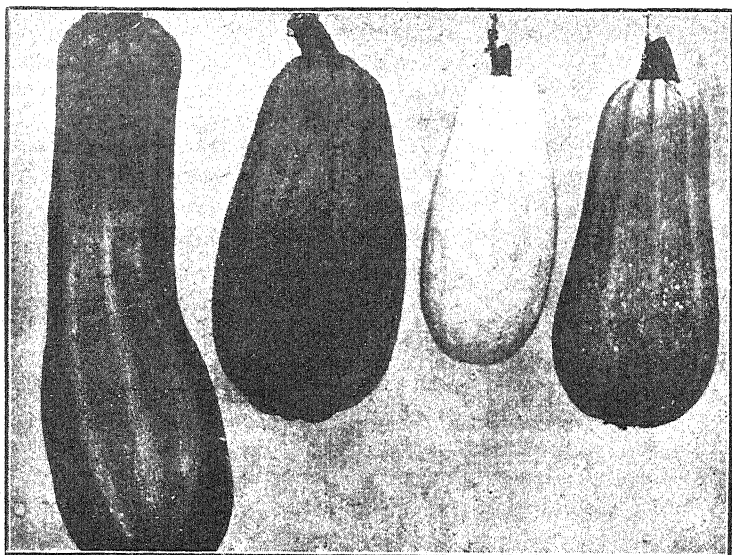


FIG. 2. — On the left is a control fruit. The three fruits on the right are the mutated forms which appeared among the plants obtained after treatment of the pollen at 300 periods per second.

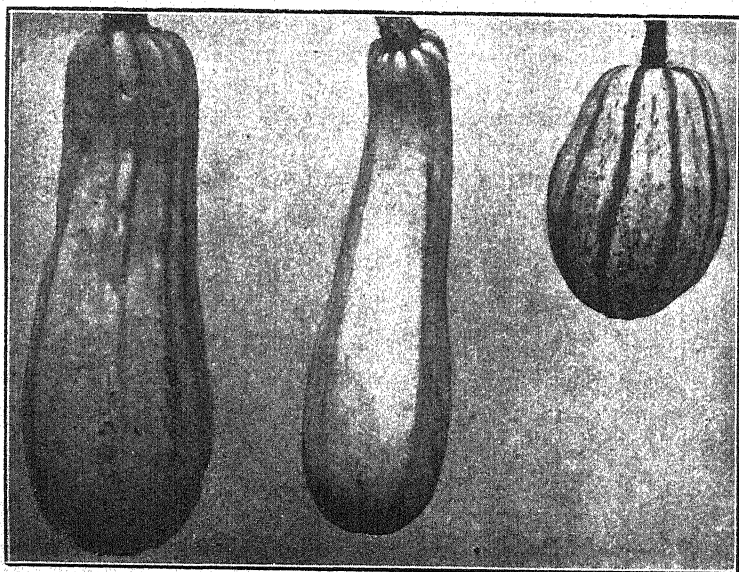
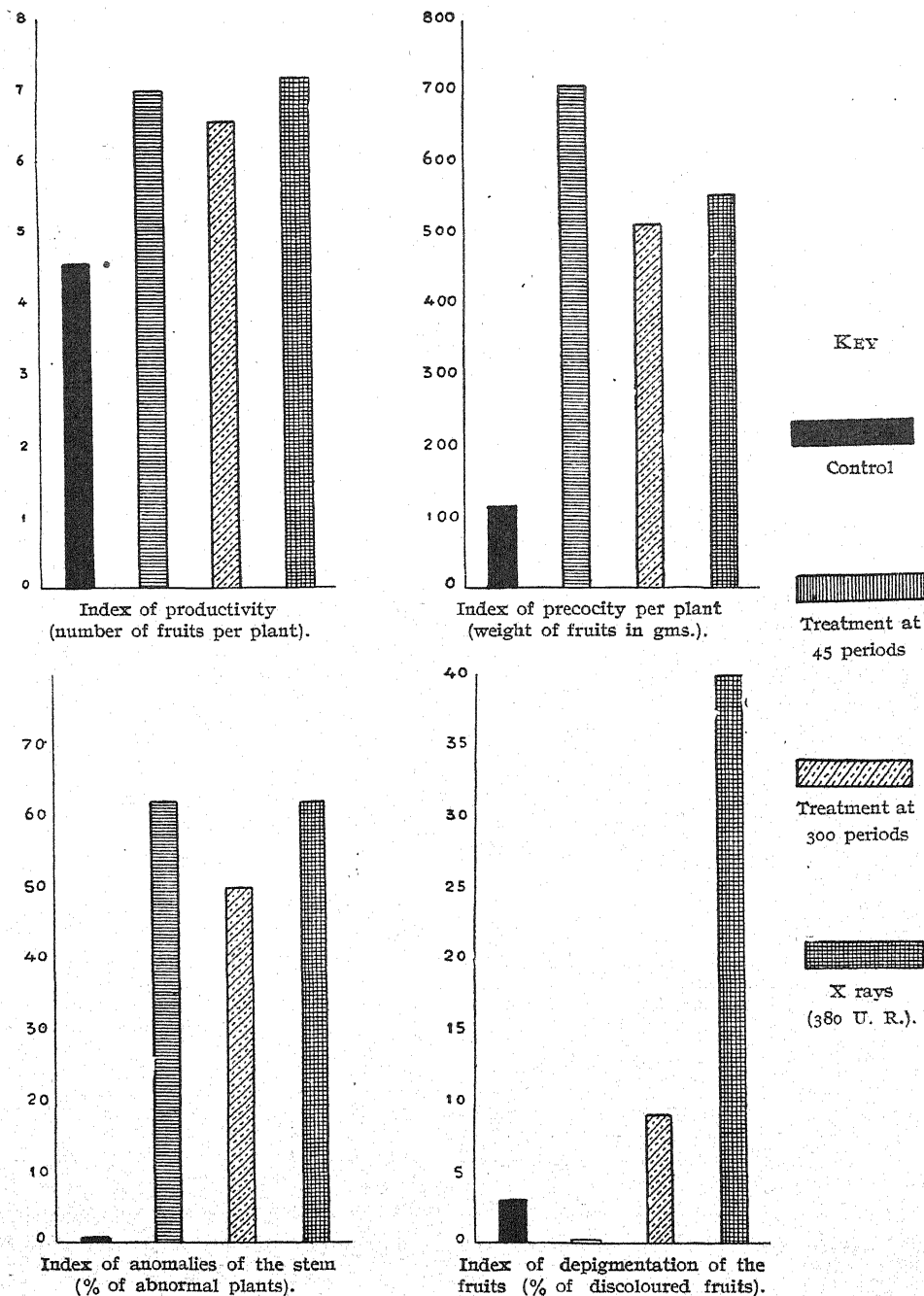


FIG. 3. — The principal mutations which appeared in the F_1 generation obtained after treatment of the pollen with X-rays (380 U. R.).

FIG. 4. — Average statistical values in plants of *Cucurbita Pepo* var. *cucurbitella* produced by electro-magnetically treated pollen.



The fruits ripened normally. The seeds seem to have found slight difficulty in forming with the abnormal pollen, but this indication is not entirely certain as it is partly subordinate to the number of seeds amongst which the food supply of each fruit is distributed. However the mean weights of the seeds are shown in Table I.

TABLE I. — *Mean weights of dry seeds of Cucurbita Pepo var. cucurbitella produced from treated and non-treated pollen.*

Treatment	Weight of 25 seeds in gms	Germination °
Control (pollen not treated)	4.92	Good
Pollen treated at 45 periodicity for 14 hours .	4.30	"
" " at 300 " " .	4.30	"
" " at 640 " " .	3.86	"
" " at 900 " " .	No fruit set	—
X rays (300 r. units)	4.40	Good

In the statistical results the data from the plot corresponding to the pollen treated with 640 periodicity has not been taken into account because of the probable error in the sowing of this row.

In the case of artificial pollination with pollen ionolised or treated with X or γ rays the defective nutrition of the seeds and the consequent reduction in weight are in other experiments very marked. The following table relating to fertilisation of *Cucurbita maxima* with ionolised pollen, will give an idea of this.

TABLE II. — *Mean weights of dry seeds of Cucurbita maxima produced from treated and non-treated pollen.*

Treatment	Weight of 20 seeds in gms	Germination
Control No. 1	10.8	Normal
" " 2	12.3	"
" " 3	9.1	"
Pollen treated at 45 periodicity for 14 hours .	4.2	Slightly accelerated, cotyledons pale.
" " at 300 " " .	4.7	"
" " with radium (1 mgm) at a distance of 1 cm for 14 hours	5.2	"

Fruits were formed and reached nearly normal size, but it would appear that the embryos of those produced from normal pollen possessed greater power of absorption which ensured for the plant greater reserve supplies. This phe-

nomenon, which makes the nutrition of the embryo dependent on the functional power of the zygote, is noted only in *Cucurbita maxima*. Similar experiments with *C. moscata* gave results of little importance.

Although it seems likely, according to MÜLLER, that the mutations are produced by 'loss' of one or more 'genes', as seems to be confirmed by cytological research in nearly every case observed, and that they are thus deficient in a naturalistic sense, succumbing when exposed to the struggle for existence, it is no less true that in a state of cultivation they may sometimes yield products



FIG. 5. — Example of a mutated strain obtained in 1923 by treatment of the pollen at 600 periods which has reproduced itself remaining true to type until 1932 (photograph taken on 13 June of this year).

better suited to cultural requirements. In the cases under consideration utilitarian ends, without having been sought, have in certain instances been reached.

This is not the first time that the writer has observed in strains derived from pollen submitted to prolonged magnetic ionolysis cases of particular fertility or of a tendency to early maturation.

In *Vitis vinifera*, amongst hybrid table grapes varieties have been obtained which are remarkable for the particular abundance and continuous production of suckers also covered with flowers. The writer has also obtained two very early types, the 'Galvani' and the 'Volta'; the latter is a good quality muscat which ripens in Lombardy in mid-July.

But as regards the extent of the results and the homogeneity of the plants, both in development and in morphological characters, those derived from the moderate and prolonged treatments shown in Table I are the most noteworthy that have so far been obtained, although they do not represent the maximum mutability obtained in another case by means of an intensive but short treatment (1).

Already in their vegetative development a large part of the plants of the F_1 generation produced from treated pollen show a tendency quite different from the normal: they are monocaulous, that is they completely lack lateral branches and suckers.

At the beginning of the flowering period these unbranched plants are covered with flowers which are mainly female and open 7 to 4 days earlier than the controls.

Exclusively in the unbranched plants there is invariably a greater or less proportion of individuals which give in the F_1 fruits which are abnormal either by reason of complete loss of pigment or its conversion into cream-white or salmon yellow or in reduced size (figs. 2 and 3).

Observations and results are passed over which would be outside the scope of this work.

The control lot reproduced exactly the morphological and physiological characters of the prototype in each organ.

Figure 4 gives an idea of the proportions in which mutations occur in the respective lots and the degree of earliness of maturity (expressed in grams) of the fruits picked on 13 June 1932 on the experimental plot.

The stability of the mutations produced in *Cucurbita* has already been verified by the similar experiments of 1921-22.

In fig. 5 are shown some examples of *Cucurbita Pepo* mutations, produced by a similar process in 1923, which have remained stable through 9 generations up to the present time.

ALBERTO PIROVANO

Director of the Fruit Growing
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TROPICAL AND SUBTROPICAL AGRICULTURE

Miscellanea.

General Subjects

AWARD FOR PROMOTION OF AGRICULTURE IN THE PUNJAB. — In 1925 the late Sir Ganga RAM, Kt., C. J. E., M. V. C., R. B., of Lahore handed over to the Punjab Government a sum of Rs. 25 000 for the endowment of a prize of the value of Rs. 3 000 to be called the Maynard Ganga Ram Prize and to be awarded every 3 years, for a new practical method which will tend to increase agricultural production in the Punjab on a paying basis. The competition is open to all in all countries.

(1) See MONTEMARTINI, *loc. cit.*, fig. 15.

The first award of the prize was given in 1931 to Dr. C. A. BARBER, Sc. D., C. J. E., of Cambridge, for his fundamental discoveries which resulted in the production of Coimbatore seedling sugar canes. These canes have been proved to be much higher yielding under Punjab conditions than the old indigenous varieties.

Applications for the next award should reach the Director of Agriculture, Punjab, Lahore, on or before 31 December 1932.

THE CULTIVATED PLANTS OF MEXICO, GUATEMALA AND COLOMBIA AND THEIR WILD FORMS. — The Institute of Applied Botany of Leningrad is collecting all the data that can be obtained in the different parts of the world on the plants cultivated. It is attempting in the first place to gather information on the spot. For this purpose several large expeditions have been undertaken, one which studied the highly important centres of Mexico, Guatemala and Colombia where are still found today in a wild state many representatives of cultivated plants, such as, potatoes, maize, kidney and runner beans, tobacco, sunflower, melons, tomatoes, peppers, etc. Fortunately the writers of the Russian report on their interesting expedition have supplied an English summary in some detail. The following information would seem of particular interest.

Maize. — Maize is dealt with by N. N. KULESHOV. A study of the plants found allows of establishing 4 main varieties which are concentrated in 4 different zones:— (1) the variety *amylacea*, having its centre in South America, particularly in Colombia and Peru; (2) the var. *indurata*, having its centre in Mexico, as have also the varieties; (3) *saccharata* and (4) *tunicata*. It would appear that the States of the central plateau of Mexico are of greatest interest in regard to the different varieties. The writer was also able to find in the region of the lakes of Chalco and Xochimilco the famous 'teosinte' (*Euchlaena mexicana* Schrad.), which various writers regard as the plant from which maize originated as a mutation. This plant is known only in this region where it is always found in association with cultivated maize. Wild hybrids between the two species were also found in the fields.

Haricot beans. — The preliminary analysis of the haricot beans indigenous in America shows that it is in Mexico and Guatemala that the greatest number of varieties of the kidney bean (*Phaseolus vulgaris*) and the scarlet runner (*Ph. multiflorus*) are found. The writers are searching for the original home of their cultivation in Central America.

Cotton. — Cotton is dealt with by an expert, M. F. M. MAUER, who arrives at the conclusion that the 4 groups of cultivated cottons are in reality true Linnaean species. According to M. G. S. ZARTZEV the following should be distinguished:—

- (1) The Central American group, represented by *Gossypium hirsutum* L.
- (2) The South American group, represented by *G. barbadense* L.
- (3) The African group, represented by *G. herbaceum* L.
- (4) The Indochinese group, represented by *G. arboreum* L.

As far back as history goes cotton was cultivated in tropical America; its cultivation is however limited to the hot and temperate regions. With the development of the large plantations the small native cotton crops have disappeared. It is however interesting to note that a semi-wild cotton is found surviving from a past epoch in the vicinity of ancient villages and along the banks of the river Magdalena in Colombia. At Chiagra interesting varieties with brown fibre, sometimes very dark, have been found.

Potatoes. — The question of the origin of the cultivated potato is highly complex. With the exception of *Solanum tuberosum*, whose centre of origin is in Chili,

the cultivated species come from the Andes. The primitive species are concentrated on the plateau of Peru and Bolivia. As regards Mexico, all writers admit that the prehistoric peoples of Central America did not cultivate the potato. The number of wild varieties is however large, and as it may be supposed that the wild tubers were common it is probable that the cultivated forms were easily spread among the native peoples. A very complete description is given of the different sorts met with in a wild state or cultivated.

Other tuber yielding plants.— Among other interesting plants yielding tubers may be mentioned the 'Cubio' (*Tropaeolum tuberosum* Ruiz & Pava), the 'Ulloco' (*Ullucus tuberosus* Caldas), the 'Oca' (*Oxalis tuberosa* Molina) and the 'Arracacha' (*Arracacia xanthorrhiza* Bancr.). This last plant has been cultivated from the earliest times on the plateau of Bogota. It possesses, it seems, a tuber very rich in starch and with a fine flavour. Attempts to introduce it into Europe have however not yet been successful.

Peppers.— In the first place should be mentioned the two species *Capsicum frutescens* L. and *C. annuum* L. The centre of the former is in Brazil, while all the kinds of the latter found in Brazil occur also in Mexico. The writers hold that it is necessary to suppose two centres of origin, Brazil and Mexico. It is particularly the long-fruited varieties (var. *longum* and *grossum*) that are found in Mexico.

The following is a list of the other Solanaceous species mentioned in the English text :— 4 kinds of tomato, *Lycopersicum cerasiforme* Dun., *L. esculentum* Mill., *L. Humboldtii* Dun., and *L. piciforme* Dun.; *Physalis peruviana* L. with sweet berries, *P. aequata* Jacq. and *P. angulata* L.; *Cyphomandra betacea* Sendt. ('árbol tomato') and *Solanum muricatum* Ait. ('pepino dulce').

Amongst the Cucurbitaceae may be mentioned *Cucurbita moschata* Duch., *C. ficifolia* Bouché, *C. mixta* Pang and *C. Pepo* L. *C. foetidissima* is found in a wild state; its fruits are used for washing purposes. *C. maxima* Duch. is not cultivated by the natives of Central America. *Chagota edulis* is grown in Mexico and Guatemala up to 200 m. in altitude.

Oil yielding plants.— *Salvia Chia* Fernald has been cultivated from the earliest times by the natives of Central America. The seeds are used in the preparation of a refreshing beverage and the oil in painting. It is considered superior to linseed oil.

Helianthus annuus is occasionally cultivated with maize. It appears that its southern limit in the wild state is Mexico. All the forms collected have a long ripening period.

Tobacco.— The native tobacco crop is negligible. For this region the material reported on is not very rich.

Cacao.— The native cacao cultivation has completely lost its importance.

The agaves, which are important in Mexico, are not dealt with in detail.

The roucou ('Achiote', *Bixa Orellana*), one of the oldest cultivated plants of America, is no longer grown.

Fruits.— Amongst cultivated fruits the following are of American origin :—

Anona (10 species, the most important of which is *A. Cherimolia*) — *Achras Sapota* — *Lucuma mammosa*, *L. salicifolia* — *Calocarpum viride*, *C. mammosum* — *Chrysophyllum Caimito* — *Diospyros Ebenaster* — *Casimiroa edulis* — *Mammea americana* — *Carica Papaya*, *C. cundinamarcensis* — *Ananas sativus* — *Persea drymifolia*, *P. americana* — *Psidium Guyana* — *Spondias Mombin* — *Anacardium occidentale* — different species of *Pasiflora* — *Melicocca bijuga* — *Chrysobolanus Icaco*.

The fruits of the following wild trees are also sold in the markets:— *Byrsonima crassifolia* — *Crataegus mexicana* — *Hymenaea Courbaril* — *Inga edulis* — *Pithecolobium dulce* — *Prunus salicifolia* — *Rubus* sp. and the seeds of *Pinus cembroides* (pine kernels).

Some species of Cactus, such as *Opuntia Ficus-indica* are cultivated for their fruits.

The list of cultivated plants originating from the Old World is of less interest.

(BUKASOV S. M., The cultivated plants of Mexico, Guatemala and Colombia, with supplementary articles by N. N. KULESHOV, N. E. ZHITENEVA, V. I. MAZKIEVICZ and G. M. POPOVA, Supplement 47th. to the *Bulletin of Applied Botany, Genetics and Plant Breeding*. Leningrad 1930. In Russian, with summary in English).

Rice

THE PHYSIOLOGY OF TILLERING IN THE PADDY PLANT. — Tillers are formed on the hypocotyl at about 1.3 cm. below the surface of the soil. When seed is sown on the surface tillering is completely arrested. A similar result is obtained if seed is sown on the periphery of a glass bottle. Thus it is light which prevents tiller formation.

In seedling rice transplanted from the nursery the young tillers are at first fed by the original seedling, but soon conditions are reversed and the seedling becomes parasitic on the daughter tillers. The latter develop nutrition-absorbing roots; the original seedling forms only the primary roots which are only water-absorbing.

In general, varieties which finish tillering in the early stages yield better, as they draw more profit from the manure applied to the seed-bed.

(C. V. SARVAYYA, *Madras Agricultural Journal*, 1932, Vol. XX, No. 5).

Starch - Yielding Plants

THE NUTRITIVE VALUE OF 'GALLAN'. — 'Gallan' (*Cyrtosperma Merkusii* [Hassk.] Schott) is a tuberous plant belonging to the family Araceae which grows wild in certain of the Philippine Islands. It is cultivated to a limited extent in the Visayan islands and in southern Luzon. The tubers are used for food. Among the food preparations made from gallan are jam, cakes and 'minokmok' (powdered boiled gallan mixed with grated coconut and sugar). It is sometimes used in place of sweet potatoes. Mr. ARTEMIO GESMUNDO, who has made a thorough study on the food value of gallan tubers has obtained some interesting results. One gram of air-dried and powdered gallan tuber when given as supplement to a diet complete except for the water-soluble growth-promoting vitamin, enabled albino rats which were decreasing in weight to recover and grow. The same result was obtained with 0.5 gm. of air-dried young leaves or young inflorescences of gallan. When gallan tuber was used as the only source of carbohydrates it enabled albino rats to grow. It would appear therefore that gallan tubers are an excellent source of carbohydrate and that they contain a water-soluble growth-promoting vitamin.

(*The Philippine Agriculturist*, Los Baños 1932, Vol. XXI, No. 2).

Coconut

TRIALS OF DIFFERENT METHODS OF TREATING COPRA. — Copra fumigated in sulphurous acid and air-dried under shelter is of better quality than that prepared by the ordinary method. It has however the drawback of being less friable. Fumigated copra may have a higher moisture content without moulding than sun dried copra.

Copra obtained from germinated nuts is always of inferior quality. Such material should thus be avoided.

It is important to realise that sulphurous acid fumigation improves copra only if the necessary care is applied in the drying process.

Previous treatment with sea water does not prevent moulds from developing. Tests with bisulphite of potassium have not given satisfactory results.

A product of satisfactory quality was obtained from nuts previously washed in a solution of sodium carbonate, fumigated with sulphurous acid and dried under cover. Oil extracted from copra treated in this way showed a lower acid content than the control samples. This method is therefore recommended.]

(*Bulletin of the Imperial Institute*, London 1932, Vol. XXX, No. 2).

W. B.

AGRICULTURAL ENGINEERING

Miscellanea.

FARM IMPLEMENT PRODUCTION AND SALES IN 1931 IN THE UNITED STATES. — The value of the machines manufactured in 1931 was 210 068 466 dollars as compared with 505 717 023 dollars in 1930, that is, there was a reduction of 58.5 per cent. The reduction in sales (total of domestic and foreign) was 49 %. The following table shows details of the value of farm machines made and sold in 1931, 1930 and 1929.

*Value (in dollars) of farm machines manufactured
and sold in 1931, 1930 and 1929.*

CLASS	Year	Manufactured	Sold
Ploughs and listers.	1931	11 363 359	13 129 404
	1930	37 830 174	37 176 586
	1929	42 365 129	39 370 831
Harrows, rollers, pulverisers and stalk cutters.	1931	5 487 896	6 015 097
	1930	13 814 780	13 043 491
	1929	16 813 081	15 844 601
Planting and fertilising machinery.	1931	10 597 223	10 786 383
	1930	26 087 161	23 343 796
	1929	31 145 092	28 501 288
Cultivators and weeder.	1931	8 208 155	10 402 194
	1930	20 606 869	18 804 764
	1929	22 856 855	21 662 510
Harvesting machinery	1931	19 887 038	24 823 718
	1930	62 145 315	55 802 536
	1929	87 712 968	74 235 938
Haying machinery	1931	6 980 099	7 666 674
	1930	17 186 426	15 537 050
	1929	18 711 607	19 097 810

CLASS	Year	Manufactured	Sold
Machines for preparing crops for market or use.	1931	11 956 347	13 364 125
	1930	20 760 106	22 023 810
	1929	30 103 384	27 985 411
Tractors	1931	74 915 380	98 120 735
	1930	205 657 133	190 535 716
	1929	227 632 527	214 720 854
Horse-drawn vehicles	1931	1 857 167	1 777 768
	1930	4 947 513	4 842 244
	1929	8 813 307	8 774 430
Barn and barnyard equipment	1931	4 948 838	4 921 519
	1930	8 518 869	8 402 116
	1929	10 269 150	10 056 857
Miscellaneous	1931	53 866 964	54 237 447
	1930	88 162 677	89 844 530
	1929	110 198 712	110 711 073
Total	1931	210 068 466	245 245 064
	1930	505 717 023	479 356 639
	1929	606 621 812	570 961 703

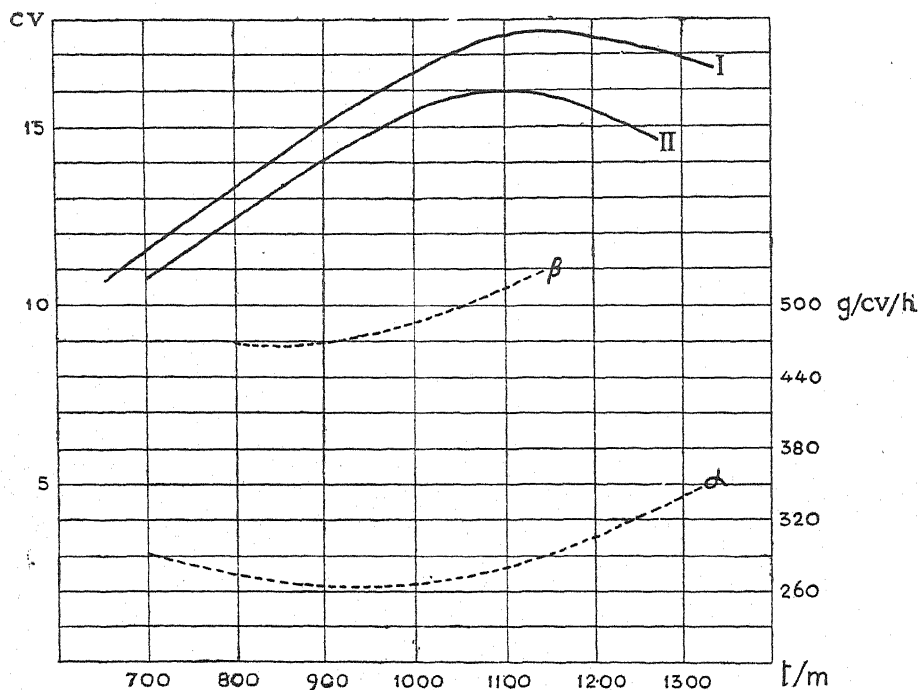
(*Farm Implement News*, Chicago, 1932, No. 21).

ALCOHOL, AS A PETROL SUBSTITUTE IN INTERNAL COMBUSTION ENGINES. — Experiments were made on this subject in France as early as 1902, but the information was vague and consisted chiefly in statements without figures. The matter has been further investigated by Prof. A. BASTET, Director of the Agricultural Engineering Station of the Algerian Agricultural Institute, who communicates his interesting results in a series of articles published in the *Dépêche Algérienne* of 15 March, 12 April, 4 May and 21 June 1932.

The adjustment of a petrol engine with a nominal power of 12 h. p. was modified so as to obtain the maximum power with a very restricted petrol consumption; the engine thus adjusted was at first geared down to maintain a reduced speed of 710 revolutions per minute. At this speed the engine furnished a power of 11.4 h. p. The engine was then allowed to run at a higher speed.

The experimental results are shown in the accompanying graph in which the powers are plotted on the ordinates and the speeds on the abscissae. Curve I shows the ratio of speed : power for the petrol fuelled engine; curve II shows the same ratio for the same engine run on alcohol. The curve (α) represents the consumption of petrol, the curve (β) that of alcohol in grams per h. p. per hour, in relation to the increase in speed. Comparison of the curves I and II shows that the economic optimum for the petrol-fed engine is about 950 revolutions per minute, at which a power is obtained of 16 h. p. with an average consumption of 270 gm per h. p. per hour, while the maximum power is at a speed of 1075 revolutions per minute with 17.3 h. p. and a consumption of 250 gm per h. p. per hour.

If the same experiments are repeated substituting 95 % alcohol for the petrol curves II and β show that the power while running on alcohol was always lower than with petrol, while the consumption was always higher. This is due to the fact that alcohol has about half the calorific power of petrol. To compensate this difference it would therefore be necessary nearly to double the quantity of alcohol for each cylinder, which is easily done since alcohol requires only half as much air for complete combustion as petrol. Alcohol, moreover, can withstand a much higher pressure than petrol.



Graph representing the relation of speed to power and consumption (petrol and alcohol).

Prof. BASTET concludes that an alcohol engine would be technically superior to a petrol engine. He says it would be characterised by a higher yield in calories per h. p. and by a greater flexibility. Unfortunately the alcohol engine does not yet exist. But its realisation would present no difficulty of construction and it may be predicted that such an engine would easily reach an efficiency of 28 %. Prof. BASTET says that it should be a high compression engine, which would be easily achieved by reducing the combustion chamber and increasing the cylinder.

GRAIN SILO FORMED BY AN ENORMOUS SACK. — In order not to be obliged to sell harvested grain prematurely large granaries may be necessary. Unfortunately present economic conditions hinder many farmers from enlarging their barns. In these conditions it should be of interest to hear of the ENDRES-RÖBER silos, which are formed simply of huge sacks capable of containing 150 to 300 quintals of grain and are held vertical by supports.

A number of trials held under the auspices of the 'Reichskuratorium für Technik in der Landwirtschaft' (Berlin) have shown that there is no risk of the sacks bursting under the weight of grain or of their being attacked by mice or rats; no damage has been done by rodents during the months of the experiments; moreover, it was found that very little grain escaped when holes twice the size of that of a rat were made in the sacking, and that it is easy to patch any hole. The huge sacks are filled and emptied by suction. (*Deutsche Landwirtschaftliche Presse*, Berlin 1932, Nr. 24, p. 305).

H. J. H.

ANIMAL HUSBANDRY

International Organisation of the Registration of Performance and Pedigree.

At the International Congress of Agriculture held at Prague in June 1931 the following were among the resolutions passed:—

«(1) That the necessary efforts should be made everywhere to generalise the testing of the individual performance of animals.

(2) That the results of such testing should be entered in the pedigree registers and on the individual score-cards, so as to complete by the results essential characteristics of the breed.

(3) That in view of the work on the lines of the international plan including both the technique of performance testing and guarantees of the authenticity of the information supplied, a Sub-Committee should be formed under the International Commission of Agriculture for the purpose of studying the question *on the basis of all previous work and to present the results to the next Congress*. This Sub-Committee will also collaborate with the *Zootechnical Section of the Scientific Council of the International Institute of Agriculture*».

It is of interest to report in this connexion that the International Institute of Agriculture has already for some years been interested in the question of the international organisation of performance testing and more particularly of the *testing of milk yield*. In 1924 the Institute published the results of an enquiry on dairy cow testing (1) which concluded with the hope that the Governments and Breeders' Associations "will, with due regard to local conditions, make special efforts to unify their recording systems in order that the results may be as accurate as possible and may have special reference to the purposes of breeding,,,"

Based on the results of a second Enquiry on the same question undertaken by the Institute in 1926, the writer drew up a scheme for an international regulation of testing methods. This was published in a report presented to the International Dairy Congress at Copenhagen in 1931 (St. TAUSSIG, *International Regelung der Milchleistungsprüfungen. — Proceedings of the International Dairy*

(1) *Dairy cow testing in different countries*. Rome, International Institute of Agriculture, English edition 1925.

Congress. Supplement, p. 57-66. Copenhagen, 1931). In accordance with this scheme complete uniformity in testing methods could not be realised in consequence of the diversity of natural and economic conditions in the different countries and regions concerned, but it would be possible to classify the methods according to the degree of accuracy attained. Three main categories are proposed and a special class, to which the following minimum requirements correspond :—

Class I. — The test is taken at least once in every 21 days ; it is carried out by a sworn official ; it includes all the milkings on the day of the test, for each cow individually and for each milking separately ; it extends for each individual cow over a whole lactation period or at least 300 days (the duration of the test must be indicated in the corresponding register and certificate) ; the determination of the butter fat content is effected by either the GERBER, BABCOCK or LINDSTRÖM method for each cow individually, for each milking or for the mixed yield of the day.

Class II. — The test is taken at least once a month ; it is carried out by a responsible person ; it includes for each individual cow, all the milkings of the day of the test ; it extends for each cow over a whole lactation period or at least 300 days (the duration of the test must be indicated in the corresponding register and certificate) ; the determination of the butter fat content is effected by either the GERBER, BABCOCK or LINDSTRÖM method for each cow individually.

Class III. — The test is taken at least once in every 60 days, or at longer intervals, not exceeding six months, in cases of tests lasting over at least 3 days ; it is carried out by a responsible person or by the farmer himself if he declares on oath that his observations are exact ; the duration of the test is not defined but must be indicated in the register and control certificate ; the quantity of milk is weighed for each cow individually ; the butter fat content is determined at least once during the period of the test by the method of either GERBER, BABCOCK or LINDSTRÖM.

Special Class. — In addition to the requirements for class I the feed consumption must be estimated by a recognised method.

An organising centre might be formed, possibly at the International Institute of Agriculture, which would classify the various national and local dairy control organisations according to the methods of testing used, and then accord official recognition to the national and local organisations, thus conferring the right to issue *certificates recognised by the International Centre for the Organisation of Dairy Control*. The certificates would indicate clearly to which class the respective organisation belongs.

The organisations on their part would be obliged to conform to the minimum requirements established for their class, to allow inspection of their methods and registers at any time by an authorised official of the International Centre and to send to the Centre an annual report on the tests and any information required. The International Centre would naturally retain the right to withdraw its recognition whenever there were found to be any irregularities in the carrying out of the tests.

* * *

According to a report published in *Berichte über Landwirtschaft* (Berlin, 1932, Bd. XVI, H. 3) the Copenhagen Congress on the basis of these proposals passed a resolution, asking the International Association of Dairy Science to take steps towards the establishment of a regulation of the cow testing methods in all the countries of the world.

* * *

The resolution adopted at the Prague Congress proposes also the *organisation of pedigree registration on international lines*. Such an organisation would undoubtedly be of considerable importance, but there would seem to be great difficulties in the way of its realisation.

A study of the organisation of pedigree registration published by the International Institute of Agriculture in 1931 (ENGELER Dr. Willy, *Studies on the Development and Situation of Pedigree Registering in the Cattle Breeding Industry*, Rome 1931) shows the great diversity of methods adopted in the different Herdbooks. Certain general rules could at most be adopted on the conduct of the registers and on the certificates of origin which are established by the herdbook organisations. It is of interest to record in this connexion the proposed resolutions which M. A. MASSÉ, reporter of the Sub-Committee formed by the Prague Congress, has recently published in a French periodical (A. MASSÉ, *L'organisation des livres généalogiques dans le plan international*. — *Revue de Zootechnie*, No. 6, June 1932) :—

(1) It is desirable that in each State a higher organisation, in which breeders and livestock specialists should be represented, should be made responsible for stating the general principles relating to the keeping of pedigree registers and for supervising their regular upkeep, on methods as uniform as possible.

(2) In one State there may be only a single register for one breed, whatever may be the extent of the geographical area concerned.

(3) Each register shall consist of 3 similar records : (a) Record of declarations of birth — (b) Final record of males after registration — (c) Final record of females after registration.

(4) For any animal having exceeded the age for registration no certificate will be able to be issued unless the animal figures in one of the two records specified under b and c in the preceding article.

(5) In addition to the 3 records mentioned in Art. 3, which are obligatory, it is permissible for organisations which ensure the upkeep and use of pedigree registers to have a fourth, called the Register of Merit or Advanced Register, in which will be entered animals which have reached or exceeded a previously fixed standard in performance trials.

(6) The closing and opening of pedigree registers being subject to local and particular conditions it is possible, for open registers, to fix conditions of initial entry which shall become more severe as the date of the foundation of the register becomes more distant.

(7) In open, as in closed, registers final entry on right of heredity must be preceded by proof of registration.

(8) For all types of animals whose performance is susceptible of testing it is desirable that testing be organised on the initiative of and in agreement with the pedigree registering organisation, on uniform methods to be decreed by the higher organisation to be established in each State.

(9) It is desirable that a special organisation should be empowered in each State to authenticate officially each certificate issued by a pedigree register.

It is clear that Mr. MASSÉ's proposals very opportunely complete for pedigree recording those reported above for dairy performance testing. It would not however be advisable to link the two schemes too closely, for in most countries performance tests are now carried out independently of the herdbooks and a good organisation of the former cannot always be combined with a good organisation of the latter, and vice-versa.

It would thus be desirable to begin the international organisation of performance testing by organising dairy cow testing, which is the branch most highly developed and most widely spread in the different countries of the globe. Moreover the technique of testing other types of performance is not yet sufficiently advanced for consideration of methods of international coordination.

The international organisation of dairy cow testing and of pedigree registration will however be able to be started and developed in full collaboration and will undoubtedly complement each other in a highly useful manner.

* * *

The above will demonstrate sufficiently clearly that the International Institute of Agriculture follows attentively every new step for the improvement of stock farming technique and is always ready to second such efforts.

S. TAUSSIG.

Miscellanea.

General

LIVESTOCK IN ITALY. — Prof. VEZZANI made an important speech in the Chamber of Deputies on 18 February 1932, in which he drew attention to the results of the last livestock census and stated that Italian stock-breeding has reached a halt in the progressive increase in numbers. This halt he considers due to a temporary phase of waiting, resulting principally from the depression in prices which has affected stock and stock products on the Italian market, which is not protected by tariffs in this branch of production. In spite of this reduction in stock breeding the foreign trade balance has been able to show in 1931 an improvement as regards animal products in favour of Italy. The speaker held that this improvement is caused by a general reduction in the consumption of animal products which, according to him, are the first to show the effects of a diminished purchasing power in a people. He emphasises the efforts made by the Ministry of Agriculture to assist breeders and insists particularly on an equitable protective tariff in aid of Italian stock farmers. He then discusses

the principal points of future constructive policy in regard to livestock production, namely :— fixation of standards for the principal breeds — periodical livestock exhibitions — formation of animal husbandry centres. The speaker then turns to stock raising experimental work in Italy and concludes by expressing the wish for “ a revival of an increasing sheep production aiming like other industries at the economic independence of the country and tending to a civil and pacific strengthening of Fascist Italy in the world ”.

Physiology

METHODS OF DETERMINING GESTATION. — In the mare gestation may be established with certainty from the 7th or 8th week by determination of the ovarian hormone in the urine.

In cows, goats and sows large quantities of this hormone can be detected in the urine during certain periods of the gestation but the test is of no practical value because of the highly irregular excretion of the hormone. At present therefore determination of gestation by means of the ovarian hormone is of economic importance only in the case of mares.

(KUEST D., Die hormonale Trächtigkeits-Feststellung bei unseren Haustieren.— *Züchtungskunde*, Göttingen 1932, Bd. 7, Heft 7, pp. 245-260).

Feeding and Foodstuffs

ADVANTAGES AND DISADVANTAGES OF SINGLE AND MIXED FODDERS. — An experiment has been carried out by CHANDA SINGH and DES RAJ at the Animal Nutrition Section of the Imperial Department of Agriculture at Bangalore (*Agriculture and Livestock in India*, Vol. II, Part I, Calcutta, January 1932, pp. 23-30), to determine whether mixed roughage is superior to single roughages. The test was made on three groups of heifers receiving respectively *Ragi* straw, hay and a mixture of these two fodders. Concentrate and green fodder was fed to all alike. The group on mixed fodder consumed scarcely more than the mean of the other two groups. Therefore, mixing fodder has not yielded an appreciable advantage. The increase in live weight per head has been 77, 80 and 86 lbs., for the *ragi* straw, for the mixed ration and for the hay groups, respectively.

EFFECT OF COD LIVER OIL UPON QUANTITY AND QUALITY OF MILK. — In every case when cod liver oil to the extent of five ounces daily was added to the ration W. E. PETERSEN at the Division of Dairy Husbandry, University of Minnesota U. S. A., observed a decline in the fat percentage of the milk with no apparent effect upon the amount of milk. The depressing effect of cod liver oil seems to be cumulative for a time at least.

(*Journal of Dairy Science*, Lancaster Pa., July 1932, Vol. XV, No. 4, pp. 283-286)

Cattle

ECONOMIC PRACTICABILITY OF THE DRAUGHT COW. — The diminution in the breeding and use of cows for draught purposes on large and small farms in Germany has led to a study at the Experimental Institute for Agricultural Work of Pommritz (Saxony) to determine whether the change is justified economically.

The results showed that it is mainly prejudice which has caused the falling off of the use of cows for draught purposes, since for a number of years the experimental use of cows on small, medium and large farms has given entire satisfaction. The economic advisability of the practice depends however on the selection of the cows, on their management and on their feeding with a view to both milk production and work. It is also necessary to avoid overloading (it is advisable not to yoke singly) and too long hours of work, specially in hot weather (watering is important). Useless work on ploughed land can be avoided by the use of team-yoking to draw several different implements at the same time. Cows should be spared before and after calving.

The writer of the article holds that in cattle breeding, even with lowland breeds, work capacity should be taken into account as well as milk and beef yield, so that dairy and work breeds and varieties adapted to the natural and economic conditions may everywhere be available. The farmer should not be obliged to introduce animals from other regions and of other breeds and varieties, which may perhaps in the long run be found unsuitable for the climatic conditions of his farm.

(DERLITZKY, Darf man im Zeitalter des Motors noch für die Kuhanspannung eintreten? — *Mitteilungen der D. L. G.*, Berlin 1932, Stück 1).

Sheep

WOOL PRODUCTION IN THE WORLD, IN FRANCE AND THE FRENCH COLONIES. — A report on this subject has just been presented to the French National Economic Council by M. Marcel RIVES. He states that the world stock of sheep is increasing, but without a corresponding increase in wool production. Transport facilities and cold storage have directed breeding towards mutton production, entailing a progressive reduction of merinos in favour of dual purpose breeds. Two causes tend today to modify the stream of the international wool trade to Europe: — (1) increasing industrialisation of the sheep raising countries (Australia); (2) development of the wool industry in new countries (Japan, Italy). The French Empire supplies only a small part (about 8 %) of the requirements of the national woollen goods industry. M. RIVES therefore considers it important to develop sheep breeding in France and her Colonies. There should be an increase in the head of sheep and also in the yield of wool, produced by a scientific selection or by cross-breeding. To these methods might perhaps be added that of animal grafting.

As a result of this report the French National Economic Council adopted resolutions in which it was said that the present situation in the world market of raw materials might be considered as making any effort to increase wool production particularly inopportune. In a general manner, however, a systematic limitation of wool production based on the temporary reduction of the absorbing power of industry, is a questionable policy. The development of sheep raising and wool production in France and her Colonies is a work of time and, as it has scarcely begun, will not bear fruit for some years.

(*L'Union ovine*, Paris 1932, No. 7).

S. T.

AGRICULTURAL INDUSTRIES

Designation and Grading of Olive Oils.

The importance that olive growing has already acquired in the Mediterranean Basin is capable of still further development in consequence of the attention the crop has received of recent years.

Much has been written in the course of the last ten years on the subject of the most practical method of guaranteeing the purity of olive oil on the market. In the first place a reliable method must be found for detecting adulteration with different qualities of olive oil or with other vegetable or animal fats or oils.

The world consumption of olive oil represents a very low percentage in comparison with that of food fats in spite of the superiority of its physiological and therapeutic qualities and food value.

A classification and standardisation of olive oils would greatly influence the further development of their consumption and since such classification would be closely connected with the production of fine oils it would necessitate satisfactory industrial treatment of the oil and active propaganda to ensure that olive oil may always retain the first place on the market.

This question has aroused the greatest interest in both importing and exporting countries. As an example of the former may be cited the United States.

TABLE I. — *Production and export of olive oil in different countries.*

COUNTRY	Area under olives in 1930 in ha.	Mean production from 1927-28 to 1930-31 in quintals	Mean exports during the three years 1928-30 in quintals
Spain	1 882 289	4 080 167	925 528
Italy	2 257 586	1 962 060	703 478
Greece	682 530	845 649	89 889
Portugal	336 482	495 056	37 970
Tunisia	264 200	365 000	338 804
Algeria	108 660	200 362	178 640
Turkey	585 000	238 750	74 712
France	120 000	81 520	92 286

It should be noted that certain of the exporting countries also import olive oil. The average imports of France during the three years 1928-30 were 268 240 quintals; Italy imported during the same time 505 824 quintals and Portugal 44 026 quintals.

Among the resolutions passed by the Xth International Olive Growing Congress held at Avignon 8-14 November 1931 were the following :—

‘The Congress recommends that in the designation of olive oils a term should be used which will remove any uncertainty on the part of consumers who, having been often misled by certain terms, may be induced to reject the natural and pure untreated oils’.

‘That the International Institute of Agriculture should on the strength of this resolution be asked to find designations appropriate to the different grades of olive oil in consultation with the national societies of olive growers’.

The International Institute of Agriculture with a view to giving effect to the resolution passed by the Congress sent a questionnaire to all the countries concerned in order to obtain the necessary information for the classification and standardisation of olive oils. Up to the present replies have been received from the following countries: Spain, Portugal, Greece, Palestine, the United States and the Union of South Africa.

SPAIN. — The ‘Asociación Nacional de Olivareros de España’ (Spanish National Association of Olive Growers) has supplied information and suggestions of the greatest interest.

In Spain olive oil has been consistently declared in legislative measures to be the only edible oil. The following may be cited as cases in point.

The Law of 5 July 1892 rules in article 2 that olive oil entering Spain by the Customs Offices will be analysed and in cases where it is found to contain a mixture of cotton seed oil or other fats, 1.5 % of tar or petrol will be added to make it unfit for consumption as food. Article 3 orders that when the sale of olive oil adulterated with any other oil shall come to the knowledge of mayors and magistrates it is to be confiscated and the seller is to be condemned by the magistrate as contravening paragraph 2 of article 595 of the Penal Code.

The Royal Decree of 17 September 1920, which publishes technical instructions serving as a basis for the classification of foodstuffs, etc. enacts on the subject of oil that ‘only the oil produced from the olive may be sold as a food oil’; it then defines its characteristics and states that the only practices for the improvement of the oil that will be allowed are the mixture of different grades of olive oil and purification by decantation or filtration.

It follows from the above that only olive oil can be legally regarded as edible oil, no other oil being able to be sold in Spain for public consumption.

The important point to be settled in the first place is how to define explicitly what is to be understood by olive oil.

The dictionary of the Spanish language defines the word ‘oil’ as ‘a yellowish-green liquid extracted from the *olive*’. It gives an identical definition of the term *olive oil* and then extends the term to apply to other fatty substances of plant or animal origin.

The Decree of 8 June 1926 gives in article 1 the following definition :—

‘ The name *olive oil* or *oil* shall be given only to the product resulting from pressing or other treatment of the olive and from its refining without addition of substances or practice of other treatments disguising the origin and designation of the product ’.

The Spanish Olive Growers’ Association considers that olive oil should be defined as follows :—

‘ The name *olive oil* or *oil* shall be given only to the product of pressing or other *mechanical* method of obtaining the oil contained in the olive and of its rectification without addition of substances or practice of other treatments disguising the origin and designation of the product ’.

In the report presented by this Association to the Government of the Spanish Republic, after having proposed a definition similar to the preceding, the whole of paragraph 2 of article 1 of the said Decree Law of 8 June 1926 was accepted in this form :—

‘ It is forbidden to give the name olive oil or edible oil to any other liquid, and even to mixtures containing such, whatever may be the composition and the proportion, even if the term *olive oil* should be preceded or followed by any adjective whatever ’.

On the strength, therefore, of the definition now legal in Spain of *olive oil* or simply *oil*, as stated in the Decree quoted above, the Association considers that it is necessary to oppose actively the designation *refined*, used even in the Decree in question, and applied to olive oils which, faulty in origin and unfit for food in consequence of their bad qualities, have been *rectified* by chemical treatments transforming them into colourless, odourless and insipid fats, and should in reality be designated *rectified* olive oils and not, as is the mistaken practice today, *refined*, for the latter adjective misleads the consuming public into the belief that the term *refined* signifies that the product so termed is finer and more selected than *natural* or *virgin* olive oil, whereas in reality it is not to be compared with the oil obtained directly from sound ripe fruit.

As regards the grading of olive or edible oils, or rather the terms used to designate the different grades, the Association holds that, in order to avoid consumers being misled by certain equivocal designations hitherto in use, such oils should be graded and designated on the market as follows :—

<i>Natural</i> , or better still, <i>virgin</i> olive oils	{	Fine Demi-fine Ordinary
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Rectified olive oils (called hitherto refined, which term is misleading as explained above).

Another point of view strongly upheld by the Association is that the word *oil* can signify only *olive oil* and cannot be applied to fats of other origin, such as those obtained from oleaginous seeds or those of animal origin. By the term *oil* may and should legitimately be understood only olive oil; all other oils should be called plant fats, groundnut fats, sesamum fats, etc.

This opinion is supported by the fact that the etymology of the word *oil* in any language clearly shows that it is derived directly from the olive tree or fruit and thus is a name characteristic of a definite product and not the generic name resulting from an undue and extensive use of the word.

In proof of this assertion the words concerned are compared in different languages in Table II. A study of this table shows that the word *oil* in all the languages cited is derived from the name of the fruit and tree by which it is produced. The etymology is the same, whether in Latin, Arabic, Spanish or Portuguese. The words used in the different languages to denote the olive tree or its fruit are a palpable proof that the word *oil* in all these languages is a specific term corresponding to a definite substance and *not* a generic term, which is obtained only by extension.

TABLE II. — *Names given to the olive tree, its fruit and oil in different languages.*

Spanish	Latin	French	English	German	Italian	Portuguese	Esperanto	Arabic
Olivo or aceituno (tree)	Olivum	Olivier	Olive-tree	Oelbaum	Ulivo or Olivo	Oliveira	Olibarbo	Azeituno
Oliva or aceituna (fruit)	Oliva	Olive	Olive	Olive	Oliva	Azeitona	Oliva	Azeituna
Oleo or aceite (fatty liquid extracted from the olive)	Oleum	Huile	Oil	Oel	Olio	Oleo or Azeite	Oleo	Azeit

PORTUGAL. — The Ministry of Agriculture of Portugal has promulgated a number of decrees and ordinances relating to the production and commerce of olives and olive oil.

The *Boletim da Associação dos Olivicultores de Portugal* (Lisboa, enero de 1930, núm. 1) publishes a summary of all the Portuguese legislation on the subject between 1923 and 1929. The Decree No. 17774 of the Ministry of Agriculture published in the *Diario do Governo*, No. 291, 1 serie, 18 de diciembre de 1929, provides certain regulations concerning the manufacture of and trade in olive oil and its designations. It includes the following regulations:—

‘The manufacturê, consignment and marketing, under the designation of natural oil, of any product other than virgin or natural olive oil are prohibited. Oil is regarded as refined oil when it has received any treatment whatever intended

to reduce or modify the acidity, odour or colour or to rectify the flavour by means of any operation other than washing and filtering'.

Oil oils intended for food purposes may in no case exceed an acid content of 4 degrees calculated in oleic acid and must have been duly filtered or naturally purified so that they do not contain impurities in suspension. If the acidity of the oil exceeds 4 degrees or if the oil contains more than 2 % of impurities it may not be in warehouses for public sale unless the containers bear in clearly visible characters the indication 'oil for industrial use'.

Oil extracted from residues by means of solvents may be consigned, sold or exposed for sale only under the designation 'oil from residues for industrial use'. By edible oil is understood only the oil extracted from olives and consigned, sold or exposed for sale under the designation 'olive oil'. For food purposes it is forbidden to mix olive oil with other sorts of oil. Only the product of the olive may be exported as *oil*, and containers must bear externally the designation of the quality of the oil, the commercial marks and the indication of the country of origin.

Before importation and exportation it is required that the official laboratories examine samples of the oil and declare that it is free from mixture with any other sort of oil. It is rigorously forbidden to manufacture olive oils and seed fats in the same factory. Oil mills and all other factories used in agricultural industries are subject to taxation by the Ministry of Agriculture. The same Decree provides for various penalties for infringement.

In 1931 a meeting was held at the Chamber of Commerce in Lisbon of producers, manufacturers and merchants to draw up regulations for the commerce in olive oil. These regulations were approved and were published in the *Diário do Governo* in the *Boletim da Associação dos Olivicultores de Portugal* (Lisboa 1931, año II, núm. 4). In article 1 of the regulations it is established that the product considered as oil and as such quoted on the Lisbon Trade Exchange ('Bolsa de Mercadorias de Lisboa') is virgin or natural olive oil as defined in Decree No. 17774 of 18 December 1929. In contracts to be made with the said Exchange the following commercial classification is to be used:—

Extra olive oil	acidity not exceeding 0.8 degrees
Fine olive oil	» » » 2.3 »
Ordinary olive oil	» » » 3.8 »
New olive oil	» » » 3.8 »
Refined (or regenerated) olive oil.	

A variation of 0.2 % is allowed in the different grades. Temporarily also (1931 crop) the legal degree of acidity has been raised to 5 degrees for ordinary oils.

The Portuguese Olive Growers' Association has instituted a seal or mark to be affixed to containers consigned by its members which guarantees the purity of the oil. The Association also undertakes analysis and has formed a National Cooperative Society of Olive Growers which is responsible for supervising exportation of the fine oils and guaranteeing their purity.

GREECE. — There are no measures in force regarding designations of olive oil

Olive oils for sale in the country are obliged to have a limited degree of acidity and to be pure, and the Law No. 3755 of 8 January 1929 strictly forbids blending with any other olive oils intended for home consumption or export.

Olive oils are marketed under the designation of their respective places of origin (Mitylene, Corfu, Calamata, etc. oils) and are graded according to their acid content (first quality oils, second quality, etc.).

Very small quantities of blended refined olive oils (mixed with natural or virgin oils) are consumed in Greece. These oils are marketed almost entirely under a designation fixed by the factories themselves, but not certifying that they contain in part refined oils.

UNION OF SOUTH AFRICA. — The regulations governing the standard for olive oil are the same as those of the British Pharmacopoeia.

PALESTINE. — The following are the regulations governing the importation of olive oil into Palestine :—

' Refined olive oil ' is liable on importation to an import duty of 10 *mils* per kilo.

Section 13 (59) of the Customs Duties Exemption Ordinance exempts from import duty ' olive oil for industrial purposes ' but by an Order in *Official Gazette Extraordinary* dated 22 July 1930 its importation is restricted and subject to a licence issued by the Standing Committee for Commerce and Industry.

' Virgin Olive Oil ' having acidity not exceeding 2 % is released free of import duty as ' olive oil for industrial purposes ' but its importation is subject to the restriction and licence mentioned above.

' Acid Olive Oil ' is released free of import duty under Section 13 (57) of the Customs Duties Exemption Ordinance which reads ' Oils acid containing not less than 30 % of free fatty acid calculated as oleic acid ', but its importation is also subject to the restriction and licence quoted above.

' Offal Olive Oil ' is released free of import duty under Section 13 (58) of the Customs Duties Exemption Ordinance which reads ' Oils offal, containing not less than 3 % and not more than 8 % of caustic soda and not less than 15 % unsaponified oily matter '. Its importation is *not* subject to restriction or licence.

In dealing with samples submitted to the Government Laboratories the designation olive oil is understood to mean the oil obtained from fruit of the olive tree without any admixture of other oils, and if for medicinal use it must conform to the standards of a recognised pharmacopoeia.

Oil manufacturers in this country have, however, obtained remission of duty on imported nuts on the plea that the ' blending ' of olive oil with other oil is a necessary trade practice and that for this purpose oils other than nut oil are too easily detected by the purchaser. Such nut oil is also sold locally as ' Salad oil ' in competition with indigenous oils.

When samples are submitted under the Customs Order (1929 Section 44) restricting the import of unrefined olive oil it is considered that refined oil and

virgin unrefined oil shall contain not more than 2 % free fatty acid (as oleic), and for the purpose of the Customs Order any olive oil having more than 2 % acidity is regarded as ordinary unrefined oil.

The sale in Palestine of olive oil or any other article of food or drink which can be shown to be injurious to health or 'imitated and adulterated' is an offence under the Ottoman Penal Code (article 194 amended Gamedî 1.1332). Up to the present no special conditions regulating the quality of olive oil have been imposed under the Trades and Industries Ordinance.

UNITED STATES. — At present the Food and Drug regulations do not specifically designate how olive oil of different grades should be labelled; the principal requirement is that oil labelled 'olive oil' must consist wholly of olive oil and must not be admixed with other oils such as cottonseed oil, etc.

There is, however, need for proper labelling and designation in the trade of such grades of olive oil as 'Virgin Oil', 'Refined Oil', 'Solvent Extracted Oil', etc.

Professor W. V. CRUESS, of the University of California, states as his opinion that it is very important that food authorities have a reliable method of determining by analysis whether a given oil is a virgin oil or a refined oil or a blend of the two. At present there is no such dependable test.

The Federal Specification No. 77 of the Federal Specification Board on Olive Oil defines olive oil, edible grade, as follows:—

'The oil called for in this specification is a pure high-grade Olive Oil made by cold pressing of sound, properly-matured fruit of the cultivated olive; clarified only by mechanical means; to be clear, free from rancidity and properly matured so that it has a good flavor. Olive oil wholly or in part chemically refined or otherwise subjected to chemical treatment, bleached or deodorized, will not be accepted'.

Mr. H. P. BURT of the 'Northern California Olive Corporation' says that although this specification is largely for the guidance of governmental departments in the purchase of olive oil, the line drawn between natural olive oil and refined olive oil is highly significant. If the specification were strictly adhered to very little of the oil imported by the United States would meet its requirements, but at the present time it is almost completely ignored.

He holds that such terms as 'virgin', 'extra', 'fine', 'surfine', etc. when used with reference to olive oil have in America neither legal nor trade significance. When the terms are used they refer to foreign designations of oil grades and in consequence of the lack of uniformity and standardisation the importers accept or reject largely on the basis of flavour and acidity. The American importers often order oil by type ('Bitonto', 'Tortosa', etc.) rather than by specifications as to quality. Certainly the American consuming public is not yet acquainted with the significance of foreign grade designations and even the word 'virgin' has at present little meaning.

American importers so far are interested rather in the prosecution of adulterations of olive oil with other vegetable oils or with refined 'sulphur' oil. Emphasis is laid on the *purity* of the oil rather than on its quality.

The obvious reason why oil classifications have been little needed in the United States is that practically all of the imported oil is 'refined' either in whole or in part. The acidity, colour and flavour of imported blends of olive oil have been rectified to such a degree that superficially, at least, their general characteristics form no reliable basis for differentiation.

Mr. BURT considers that a trade distinction between 'virgin' and 'refined' olive oil should be made in the United States as a defence against the cheaper vegetable oils. Although there is at present no such trade distinction there is a certain protection in that the blending of natural and refined oils without label-designation of the blend is an adulteration and therefore a violation of the Food and Drug Act. The 'Pure Food Administration' has recently decided that it will re-export any shipments improperly labelled as to contents.

Dr. CAMPBELL, Chief of the Food and Drugs Administration of the Department of Agriculture, holds that there is no hope of efficient regulatory control until an approved laboratory test is made available which will indicate the presence of refined olive oil.

Mr. P. F. NICHOLS of the University of California suggests that olive oils should be graded and designated as follows:—

(1) Virgin olive oil shall be the oil from the first pressings, and shall not have been subjected to any refining processes other than sedimentation and filtration.

(2) Refined olive oil shall be oil from cold pressings, some or all of which may have been subjected to the refining processes of neutralization, decolorization and deodorization.

(3) Commercial oil shall be oil not coming under the previous two classifications and/or of such nature as to be unsuitable for food and/or may include oil extracted by solvents from olive press cake.

This 'commercial' oil corresponds to that used in Spain for industrial purposes.

The Federal Food and Drugs Act, Washington S. R. A., F. D. No. 1 regulates the importation of olive oil in common with other foods.

The above report shows the necessity of an agreement between the olive oil exporting countries for a uniform grading system in order to avoid the present errors and confusion. The need seems more than ever apparent for the formation of the International Federation of Olive Growers' Associations, for which the statutes and regulations were unanimously approved at the Tenth Olive Growing Congress at Avignon. The Federation would have its headquarters at the International Institute of Agriculture and in collaboration with the Institute might reach a solution of the problem of regulating the world trade in olive oils and coordinate its propaganda in the different countries from an international standpoint, as has already been achieved in the case of other products.

At all events when the opinions of the National Associations of Olive Growers of the other olive oil exporting countries (Italy, France, Tunisia, Algeria and Turkey) have been received the International Institute of Agriculture may be

able to call a Conference of representatives of the Associations and propose coming to an agreement on the most suitable designations for the different grades of oil, which is the only means of guaranteeing the purity of olive oil on the world market.

ANGEL PASCUAL.

Miscellanea.

INDUSTRIES OF PLANT PRODUCTS.

EXTRACTION OF SACCHAROSE FROM CRUDE JUICES OF BEET, ETC., HACQUART PROCESS. — The crude juice is concentrated until a syrup is obtained with a density corresponding to saturation point; to the hot syrup is added strong alcohol in a hermetically sealed mixer allowing of slow and progressive cooling. Very pure sugar crystals separate out on centrifuging in an ordinary turbine.

(*La Betterave*, Paris, 1932, No. 557).

TARTARIC ACID IN CANE SYRUP REFINING. — The addition of tartaric acid to the defecated juices improves the clarity and colour of the syrup and its tendency to crystal formation. Tartaric acid is preferable to citric acid because the double tartrates of Ca and K are only slightly soluble and leave only reduced acidity on crystallisation, whereas the double citrates of Ca and K are soluble. The sugar obtained is brilliant, light in colour and has an agreeable odour.

(*La Sucrierie Belge*, Bruxelles, 1932, No. 17).

LEVULOSE EXTRACTION FROM CHICORY. — The method of extraction proposed by KUZNETZOFF and COLL can easily be applied in beet sugar factories. The method consists in installing in the factory an apparatus for hydrolysis of the juice; when the process is finished the juice is cooled and precipitated with chalk; the levulose is regenerated by carbonatation and the filtered juice is decolorised by an activated char (Norit, etc.).

(*Facts about Sugar*, New York, 1932, Vol. 27, No. 3).

THIRD INTERNATIONAL VINE AND WINE CONGRESS, ROME, 23, 24 AND 25 OCTOBER 1932. — The meetings of the Congress will be held at the International Institute of Agriculture. The subjects on the agenda are the following:—

I. — *Reduction of the cost of production of grapes and wine..*

(a) Technical methods: varieties and cultural treatment for reducing cultivation costs while improving the quality of the products.

(b) Oenological, chemico-physical and mechanical methods for reducing the cost of transforming grapes into wine while increasing the value of the product by reason of the intrinsic quality of the grapes.

(c) The best methods for rationalising the trade so as to reduce the cost of distribution of the products to consumers.

II. — *Direct use of grapes as food:—*

(a) Best technical and commercial methods for obtaining increased consumption in the fresh state of grapes hitherto grown for wine making.

(b) Culture, consumption and value of table grapes of selected varieties.

(c) Technical and commercial means of improving the production and consumption of non-alcoholic products.

III. — *Utilisation of by-products from vine growing*:—

- (a) Full utilisation of the marcs and lees.
- (b) Utilisation of the vine stems.
- (c) Value of alcohol from the vine.

IV. — *Proposed scheme*:—

(a) that a distribution of the consuming markets should be attempted by reciprocal agreements between the persons concerned in the various producing countries; these should also come to an agreement among themselves to open new markets in countries where wine is at present little known or not readily accessible;

(b) for a better coordination of the world wine trade on the part of the producing countries in order to obtain that in all commercial agreements to be made with consuming countries adequate shares shall be compulsorily reserved for wines and grapes.

V. — *Influence of adaptation and affinity on the tenure, bearing and prosperity of vineyards*.

VI. — *Standardisation of methods of wine analysis*.

VII. *Wine in health and medicine. Influence of wine consumption on alcoholism, tuberculosis, cancer and syphilis*.

DRY ICE AS A PRESERVATIVE. — It is known that ethylene oxide (C_2H_4O) is an extremely violent poison for insects while having no ill effect on grain, but its use is difficult owing to the rapidity with which it vaporises and its inflammability. By mixing solid carbon dioxide with the ethylene oxide its vaporisation is regulated and the danger of fire eliminated. Also the insects are forced to increased respiration and so absorb greater quantities of the C_2H_4O vapour and are more readily poisoned.

The results obtained in closed (steel and concrete) and open silos show that the treatment is wholly effective, completely killing any insects in the grain.

(*Industria Italiana del Freddo*, December, 1931, No. 12).

NEW 'LETY' APPARATUS FOR OLIVE OIL EXTRACTION. — This method solves two problems of primary importance in the olive oil industry as well as others of secondary importance:—

- (1) it eliminates labour and strainers;
- (2) it produces virgin oils with greatly reduced acidity and nearly eliminates the lamp oils.

The apparatus is composed of 2 closed chambers connected to a mechanical mill. The olive pulp is carried by means of a worm screw to the first chamber where it is mechanically treated until the oil separates out.

The mass thus prepared passes to the other chamber in which the oil filters continuously through a double filter while the residues and impurities fall to the bottom. The extractor is fitted with devices for raising when necessary the temperature of the pulp; thus the first chamber is provided with an internal heating system by which the compression plates are enabled to act as radiators.

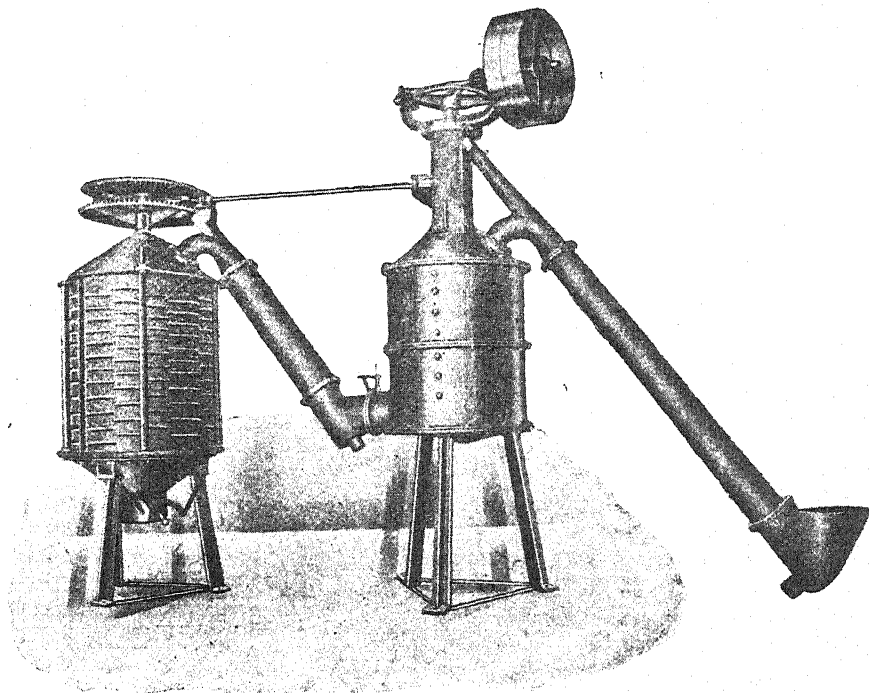
A number of trials made at Ubeda in Spain during the last olive season proved the effective and practical working of the Lety extractor. In 8 hours of working 170

arrobas (about 1870 kg.) of oil were extracted. Thus supposing that the apparatus can work continuously, in 24 hours 1 wagon-load of oil could easily be obtained.

A hydraulic press capable of working about a ton of raw material is used.

The apparatus makes it possible to obtain 70-80 % of first pressing oil and to reduce the production of lamp oils by about 80 %.

(*Aceites*, Revista técnica, Barcelona 1932, año II, núm. 15, págs. 136-138).



New 'Lety' apparatus for extraction of olive oil.

GROUNDNUT SHELLS AS FUEL. — A solution of the problem of the utilisation of groundnut shells is of great interest for in certain industries they form a bulky and dangerous (auto-combustion) bi-product which has to be disposed of somehow.

The principal difficulties in the way of the use of this waste product as fuel are the following:—

(1) *Very low apparent specific weight* (80 kg. per cub. m.); *low calorific power* (4000 calories); *richness in volatile substances* (86 % of the dry fuel). These characteristics entail the following requirements: self-feeding furnaces — continuous feeding to avoid smoke and production of carbon mon-oxide — as little air as possible passing through the fuel.

(2) *Ash very alkaline, unstable and reacting with the hearth bricks.*

(3) *Very high theoretic temperature of combustion* (2500°, as compared with 2000° for coal). This factor, which may be considered as an advantage, considerably complicates the problem of utilising the nut shells because normally boilers are not constructed to stand such high temperatures and the hearth bricks are attacked by the ash forming fusible compounds at 1250°.

These drawbacks have been eliminated in the « Foyer gazogène R. M. » which is a self-feeding furnace built by the ' Office Central de Chauffage rationnelle '. The furnace has given highly satisfactory results during a year of industrial use, without requiring large repairs. In BABCOCK and WILCOX boilers with a capacity of 170 cub. m and superheating (270°) and an effective pressure of 12 kg., with an hourly consumption of 9 cub. m. of groundnut shells, a mean hourly production of 3 000 kg. of steam at 695 calories per kg. has been obtained.

(*Bulletin des Matières grasses*, Marseilles 1932, No. 4).

AIR RETTING PROCESS AND ARTIFICIAL DRYING OF PLANT FIBRES. — A French process, Patent No. 702 995, softens the plants by steeping in a nutritive solution obtained by diluting a flax macerating liquid to which has been added nutritive substances and active spores from cultures of Mucedineae. The fibre thus moistened is heated in an oven for 24 to 36 hours to ensure germination of the spores, then is retted in the air and dried as usual.

(*Fils et Tissus*, Guebville 1932, No. 1).

HYDROGEN PEROXIDE AS A BLEACHING AGENT FOR TEXTILE FIBRES. — A lecture given by M. BILLOT-MORNET on 26 April 1932 at the International Congress of Textile and Colour Chemists contains a short description of the various processes for bleaching with hydrogen peroxide and the patents involved. He shows that the new technique which is rapidly developing is likely to replace the use of chlorine, particularly in view of the possibility of obtaining cheap H_2O_2 (electrolytic H_2O_2 , etc.).

The German patented process 688 418 (1930) allows of very rapid and economical bleaching with simple apparatus, and reduces not only wool but also a number of other textile fibres (linen, etc.). Hydrogen peroxide has also the advantage of protecting fibres from plant and animal parasites during storage.

(*Fils et Tissus*, Guebville 1932, No. 1).

IMPORTANT OUTLET FOR COTTON IN THE MANUFACTURE OF SILENT GINNING MACHINES AND HIGH RESISTANCE TISSUES FOR INDUSTRIAL USE. — Silent ginning machines (' Celeron ') made with a framework of high resistance cotton impregnated with synthetic resins are as satisfactory as metal apparatus. The ' Celeron ' ginner can be used without metal brackets, rivets or hubs; they are highly resistant and do not become out of shape as a result of heat, moisture or acid or alkaline reagents, neither are they attacked by plant and mineral oils and never tend to seize.

The use of strong cloths impregnated with synthetic resins is continually increasing in a number of other industries such as wagon covers, cold storage, etc.

(*Fils et Tissus*, Guebville 1932, No. 2).

INDUSTRIES OF ANIMAL PRODUCTS.

UTILISATION OF SLAUGHTERHOUSE BLOOD IN THE PREPARATION OF A STOCK FEED. — A Trieste firm is producing a complete concentrated feed called ' Vitalitas ' made from slaughterhouse blood, bran and oilcake. No large modern plant is required and the processes are the following:—

- (1) Mixing of the meals with the blood in a malaxer;
- (2) Pressing of the mixture and moulding into bars which are then cut by special knives into small oblong pieces;
- (3) Desiccation in a hot air cylinder or on a continuous belt;
- (4) Slow cooling, sifting.

The ' Vitalitas ' produced at present (50 quintals a day) is almost entirely sent to Germany where it is highly valued, specially as a poultry food.

(*L'Amico dei Campi*, Trieste 1931, No. 12).

MUNICIPAL REGULATIONS CONCERNING MILK HYGIENE IN MONTEVIDEO, URUGUAY.

— The hygiene and pasteurisation of milk are continually being studied in the producing countries. The publication indicated below discusses the legislation established of recent years in Montevideo regarding the hygienic production of milk and cream, particularly the Ordinance which came into force on 1 May 1930 regulating and controlling all the operations of the production and marketing of milk and butter on the best hygienic methods, which are the basis of the progress of the dairy industry.

The following questions are studied in detail:— grading of milk, milking sheds, milking methods, refrigerator chambers, etc.

(*Boletín de la Asociación de Ingenieros Agrónomos*, Número especial dedicado a la Ordenanza Municipal sobre higienización de la leche. Montevideo 1929, año I, núm. 5-6, 62 págs, gráficos y fotografías).

MILK HYGIENE IN URUGUAY: SEDIMENT TESTS. — One of the most important points in connexion with the milk supply is its degree of cleanliness and contamination. A study has been made of sediment testing as a means of improving the quality of the milks sold in Montevideo. The need is shown for demonstrating to the producer by such tests the value of hygienic measures taken at the time of milking. Photographs of slides obtained at Bañado de Medina and at Paysandú are of value in this connexion. The writer of the article referred to reaches the following conclusions:— (1) Sediment tests made on the farm have shown the efficacy of the method for obtaining hygienic milk; (2) to stimulate the production of hygienic milk it would be advisable to improve the prices for clean milk.

(PEDRO MENÉNDEZ LEES, *La prueba del sedimento*, in *Revista de la Facultad de Agronomía*, Montevideo, 1931, No. 5).

IMPROVEMENT OF ANIMAL FIBRES. — Animal fibres, particularly wool, are vastly improved by treatment with 10 % of their weight of certain organic halogenic substances such as trichlor-aniline-sulphonic acid, trichlor-naphthalene-sulphonic acid, etc.

(*Fils et Tissus*, Guebville 1932, No. 2).

PROPORTION OF GREASE ALLOWED IN WASHED WOOL. — Wool intended for combing and dyeing should contain 0.5 to 1 % of grease; that intended for coarser fabrics up to 1.5 % and wool for carpets up to a maximum of 2 %.

(*Fils et Tissus*, Guebville 1932, No. 1).

SULPHUR CONTENT OF WOOL. — The differences in the sulphur content in wool are in part attributed to feeding conditions and differences in pasture (BARRIT and KING). Wools which have the highest sulphur content (3.6 % as compared with 3.2 %) are the best for spinning. Merino wools have a higher sulphur content than Romney wools.

(*Fils et Tissus*, Guebville 1932, No. 1).

BOOK NOTICES *

General

MILLAN Roberto, Catálogo de las publicaciones periódicas de la Argentina sobre agricultura, in *Boletín del Ministerio de Agricultura de la Nación*, Buenos Aires, 1931, tomo XXX, num. 4, p. 223-307.

[An analytical catalogue of 213 periodicals published in Argentina and embracing all branches of agriculture. Information is given about the year of foundation, the founders and directors, titles and changes of title, etc. for each periodical.

Of the 213 publications, 77 are reviews, 12 are almanacks, guides, etc., 50 are issued by societies, centres, associations, leagues, markets, chambers of commerce, etc., 11 concern railway enterprises, 44 are issued by Ministries, Departments of Agriculture, public administrations, 19 are organs of universities, colleges, etc.

There is an index of the personal names mentioned and one of the titles of the publications].

A. P.

Annuaire de l'Association amicale des anciens élèves de l'Institut national agronomique (Ingénieurs-agronomes) Promotions 1876 à 1930, 488 p. Poitiers 1932, Imprimerie moderne Nicolas, Renault et Cie.

[This Yearbook contains, in addition to a complete list of past students of the National Agricultural Institute, interesting information on the organisation and personnel of the agricultural administration in France.

Special mention should be made of Chapter IV in which are indicated the administrative careers open to agricultural graduates].

G. R.

Botany

The Botany of Crop Plants, by Wilfred W. ROBBINS, Third edition, 639 p., 269 fig., Philadelphia 1932, P. Blakiston's Son & Co., Inc., 1012 Walnut Street.

[The first edition of this work appeared in 1917, a second in 1924; the third edition which has been issued this year has been revised and enlarged, keeping the same end in view, that of providing students with an indispensable work on the botany of cultivated plants.

The book is in two parts. Part I (chapters I-VIII) gives an account of the fundamental principles governing the structure of the different parts of the plant; Part II (chapters IX to XLI) studies the most important plants in systematic order, including in addition to descriptions of the characteristics of the different organs, information regarding the varieties cultivated, their origin and the use of the various products grown.

* Under this heading are included short synopses of book received for review.

The remarkably clear text is fully illustrated with photographs and drawings, mainly original. Brief bibliographical references are given at the end of each chapter. The work is completed with a glossary of the technical terms used and an index].

G. R.

Livestock

DRIEHAUS, Blutaufbau und Leistungsvererbung in der Lüneburger Herdbuchzucht, in *Arbeiten der Deutschen Gesellschaft für Züchtungskunde*, Heft 53, 136 p. Hannover 1932, Verlag F. & H. Schaper.

[This study on Genealogy and Inheritance of Aptitudes in the Herdbook of Lüneburg (Germany) is a continuation of a work published in 1921 in the same series (Works of the German Society of Scientific Stockbreeding).

By means of genealogical tables the writer shows the general and special pedigree of the breed and in a series of photographs of typical cows and bulls he demonstrates the development of the Lüneburg cattle type through recent decades.

As regards transmission of aptitudes the studies have shown that certain bulls have strongly influenced the performance of their daughters while others have not been able to transmit any influence. The results are thus similar to those obtained in the United States, namely that the son of a high-yielding cow is not always capable of transmitting the high-yielding character].

S. T.

BAESSMANN F., Die Verbreitung der Pferdeschläge in Deutschland, in *Arbeiten der Deutschen Landwirtschafts-Gesellschaft*, Heft 381, 61 p., 1 Farbenkarte, Berlin, D. L. G. 1931.

[The most interesting part of this pamphlet on the Distribution of Breeds of Horses in Germany is the coloured map, which was intended to show this distribution, but in reality shows the relative frequency of light draught- and heavy draught- horse breeding. Evidently it was considered technically impossible to represent graphically the distribution of all the numerous varieties of horses, for it is already difficult to distinguish clearly the different varieties, and it is even more difficult for horses than for cattle to define the territories in which the different varieties are bred.

The map shows clearly enough however that in the greater part of Germany the two groups of horses - light draught and heavy draught - live side by side and that there are relatively few districts devoted exclusively to one or the other. It is clear though, that the relative frequency of light draught horses diminishes towards the south and west of the country. It is only in Baden and Württemberg that the proportion of light horses increases, even showing islands where they are bred exclusively.

The text of the pamphlet gives details about each region and the main statistics which were obtained by an enquiry undertaken for the preparation of the map. As a whole this publication represents a valuable contribution to the geographical study of domestic animals].

S. T.

SEYFFERT C., *Biene und Honig in Volksleben der Afrikaner*, 209 p., 15 Textabbildungen, 4 Karten, Index. Leipzig 1930, R. Voigtländer's Verlag.

[In this interesting work on Bees and Honey in the Life of African Peoples there is included first a study of the vegetation in relation to the production of the bees,

then a description of the species occurring in Africa. A pleasing chapter deals with the capture of wild bees and collecting their honey. Much space is devoted to the latter.

The properties of the honeys obtained in Africa are described and their various uses as sugar substitute, preservative, therapeutic agent, ingredient in beverages, etc. In a chapter devoted to the management of wild bees the question of the value of honey to primitive man is discussed and how and where bee-keeping can have originated].

S. T.

FORESTRY

Notes.

THE VALUE OF THE BIRCH ON MARSHY FOREST SOILS. — The great value of the birch tree in preventing land from becoming marshy is not sufficiently known. The birch often grows spontaneously on marshy land, and it is not by chance that the young spruce trees growing on the same tracts are always more vigorous if in the immediate neighbourhood of the birches. These trees take up large quantities of water and thereby tend to lower the level of the subterranean water of the surrounding area. That the birch tree really has this capacity for reducing the level of underground waters, the effect of which is to increase the rate of growth of conifers in the neighbourhood, is proved by the results of two trials, described by M. P. THURMANN-MOS in the *Tidsskrift for Skogbruk*, Oslo 1932, No. 11 and in the *Skogseieren*, Oslo 1932, No. 6.

For the first trial, a felling was made of birches over an area of 20 to 30 m., on a marshy tract traversed by ditches and supporting a growth of these trees. Starting from the middle of this cleared space and penetrating to a distance of 15 m. into the wooded part of the marsh, a line of wells was sunk in which during the course of the summer of 1931 the height of the subterranean water was measured. In August when this level was at its highest, it was in the cleared space 20 m. only below the surface of the ground. At a distance of 3 m. from the edge of this area, the level of the subterranean water began to sink and within the standing birch wood it was 40 m. below the ground. This phenomenon is to be attributed simply to the influence of the stand of birch.

In the second of the trials, the marshy ground examined was traversed by ditches, which were very deep and well made. Before the construction of these ditches in 1904, the birch trees formed the upper story, while the undergrowth consisted of young spruce. Examinations of the growth made proved that the result of the ditching had been very satisfactory. In 1925 all the birch trees were felled with a view to promoting the development of the spruces. In 1925-26 a large number of new ditches were dug, but the effect of this was not sufficient to compensate for the lost action of the felled birches. From one to two years after the felling, the growth of the spruce and the Scots pine already showed decline and this backward rate of growth still continues.

The following figures illustrate the behaviour of the conifers mentioned: thickness of the annual ring before the ditching: spruce 0.3 mm.; Scots pine 0.6 mm. After the effect of the ditching had made itself felt: spruce, 1.6 mm.; Scots pine, 1.8 mm. After the felling of the birches: spruce, 0.9 mm.; Scots pine, 0.9 mm.

According to these experiments, the decline in the spruce set in one year after the felling of the birches, and that of the Scots pine 2 years after. The Scots pine

thus tolerates better than the spruce a high level of subterranean water. The marked decline in the rate of growth in this tree, which is usually so robust, after the removal of the birches is explained perhaps by the fact that whereas in a marshy soil not traversed with ditches the root system of the Scots pine is a tracing root, after the ditching the tree tends to develop a tap-root. When the underground water level rises again, the tap-root probably ceases to function, so that the tree suddenly loses a great part of its root system. An examination made of the roots of some small Scots pines, where growth of the terminal bud had shown in the course of the last few years a marked diminution, confirms this hypothesis, since the tap-roots of these small trees were dead, and only the branching of the upper roots showed signs of life.

It is inadvisable to make any hasty cutting of birches on marshy areas. In the case of deep swamps, birches should always form part of the stand after ditching. If it is decided to fell the birches, it should be done with care and caution, by means of a succession of clearings, to such a degree that the increased growth of the conifer stand may itself result in the absorption of the superfluous water.

R. W.

THE COASTAL SAND DUNES OF SOUTH WALES. — An estate of about 4,400 acres has been acquired at Pembrey, on the southern coast of Wales, of which about half is composed of sand dunes. The results of the afforestation work undertaken on these dunes are described in the *Quarterly Journal of Forestry*, Vol. XXVI, No. 2, London, April 1932.

The greater proportion of the dunes are covered with marram grass (*Psamma arenaria* or *Ammophila arundinacea*). The low-lying flats which in winter become lagoons, and which can only be planted if they can be drained at one end, are covered with a growth of dwarf willow (*Salix repens*), a plant which also occurs on the drier sands under certain conditions. Less damp hollows may be colonised by the creeping sand sedge (*Carex arenaria*).

After the initial fixation of the sand with these three species, the flora develops rapidly and a large variety of other plants make their appearance and complete the process of stabilisation of the dunes. A more or less even growth of *Salix repens*, when it occurs on dry ground, forms however the best planting medium for the afforestation operations. Corsican pines planted amongst such a growth makes better development during the early years than the same trees planted close by in strong marram grass. *Carex arenaria* which is not of importance as a primary fixing agent is useful, after the marram has acted as pioneer, in helping to cover the ground and form a matted turf.

Although on these dunes the annual rainfall is probably not more than about 40 to 45 inches, ample moisture is always present within a very few inches of the surface and there is little to fear from drought, especially as, owing to the low food content in this light soil, there is marked downward root development in all species.

Before afforestation can proceed on any large scale, it is essential to secure so thorough a covering of the whole surface with marram grass that movement of the sands is practically impossible. Grass for planting the bare places is obtained from the already densely clad areas. The tufts are pulled up with one or two subterranean nodes, portions of rhizomes and rootlets. At Pembrey the practice is to plant the tufts approximately two and a half feet apart, and at a moderate depth. In favourable weather planting may be done all through the autumn, winter and spring months.

If the shifting of the sands is to be successfully combatted, it is essential to know exactly the direction in which they are tending to advance. It is of the utmost import-

ance to start fixation at the spot from which the moving dunes is receding and to work up and around its *windward* face. In South Wales the littoral dune is nearly everywhere well defined and mainly fixed. Breaches appear in places, and these have to be repaired by means of the erection of wattle hurdles, the first line of which is made to correspond with what will finally be the foot of the seaward slope of the dune. Behind this line it is advantageous to scatter loose brushwood on the dune. Before this hurdle is covered by the drifting sand, a second hurdle is erected behind the first on the top of the slight bank which has been formed, and at the same time planting of marram grass on the seaward slope can be begun. This process is continued until the breach is entirely repaired to a height corresponding with the adjacent natural dune. Before the topmost hurdle is buried the whole of the landward and seaward sides should have been completely fixed with marram. If any difficulty is found in effecting this, a light scattering of brushwood between the marram rows gives additional stability.

The treatment of inland shifting sands is very much the same as that followed for the littoral dune, but the erection of hurdles is seldom required, and it is generally sufficient to scatter brushwood over the sand and to plant marram under their shelter. In default of brushwood, on dunes where there is only a moderate amount of shifting, good results have been obtained by the use of rushes and the general mowings from a neighbouring marsh.

Constant vigilance is essential especially in respect of "risky" places so as to repair at once any breaches that may occur after a storm. Fixation can never be considered as complete until the ground is fully covered with a thick tree crop.

As soon as the area is stabilised with marram grass, attention is given to covering it as quickly as possible with the permanent shelter of the timber crop. On the littoral dune the plantations will naturally form little more than a shelter of distorted scrub. Thus at Morfa Mawr, Margam, in a small plantation of Corsican pines intermingled with a few maritime pines, within about 200 yards of the shore in an exposed position, all trees as far in as 50 yards from the windward edge showed severe distortion, but beyond that limit clean and straight timber was produced. At 21 years of age, and within 50 yards of the windward edge Corsican pine shows an average height of just under 30 feet.

Useful species. — The maritime pine (*Pinus pinaster*) has a rapid initial growth for a short period and then slows down in height increment. As a shelter this tree has however a certain utility, it holds its foliage, in face of the sea gales better than the Corsican pine.

The most interesting plantations to be found on the Welsh dunes are some of those of Corsican pines. At Merthymawr the Corsican pines of approximately 80 years of age exceed 90 feet in height and range up to 24 inches quarter girth. This stand is now over-ripe; an examination of the trunks proves that growth was at first very rapid and continued well up to about the 45th year. After that time very little growth was made. If cut at an age of 45 years the crop would have produced large pit timber and telegraph size material; it is in fact clear that 40 to 45 years would be a suitable rotation for this tree.

A few old sycamores mixed with these Corsicans have made good growth, and the gaps in the plantation are rapidly becoming filled in with a natural regeneration from these parent trees.

Scots pines, on the other hand, have proved unsuitable for afforestation of the dunes, on account of their slow, irregular and distorted growth.

Austrian pines, intermixed at the edges of the Corsican plantation, although becoming more distorted than the Corsican, preserve their foliage better, and might be useful as a shelter crop on edges.

Poplars which grow fast in damp places, are incapable of resisting the exposure and rarely yield clean timber.

The alder, in spite of its poor commercial value, is useful in the afforestation of the dunes. Along steams in sheltered places which are not waterlogged it makes straight timber, and poles up to 56 feet in height and 9 inches quarter girth have been seen. With pure pine stands there is a tendency to an overaccumulation of raw humus which may result in a deterioration of the soil, and accordingly with a view to avoiding this danger as well as any risk from fire, it is important to intermingle with the conifers some broadleaved species, and those especially to be recommended for this purpose are the sycamore and the alder. The *Robinia pseudo-acacia* is also to be recommended, both as a soil improver and as a fire screen.

Corsican pine will, however, form the principal plantations. Up to now two or one year transplants have been mainly used, but satisfactory results have also been obtained with two-year seedlings.

Planting at Pembrey has been done for the most part with a spacing of about 4 ft. 3 in. to 4 ft. 6 in. It is noted as of great importance that trees should be planted deeply and with the roots entirely straight.

Basing calculations on a 45-year rotation, a final yield of 3,000 cubic feet per acre equivalent to approximately 90 tons of pitwood, may be anticipated. Intermediate yields of 120 to 200 cubic feet may also be obtained from thinnings made between the 30th and 40th years.

R. W.

RESUMPTION IN DENMARK OF THE USE OF WOOD AS A COMBUSTIBLE. — After an exhaustive study of all the factors in connection with this problem, M. SKOV, an expert adviser on the subject of heating, deals with the above-mentioned subject in an article published in the "*Dansk Skovforenings Tidsskrift*", Copenhagen 1932, No. 4.

This is the third time within the last twenty years that the possibility of using wood instead of coal for heating the co-operative dairies which serve the country districts throughout Denmark has been discussed.

In 1910 the Afforesting Service of the Dunes, finding it necessary to make large scale thinnings which would render available considerable quantities of firewood, arranged for some experiments in collaboration with the Danish Society for the Plantation of Heaths (*Det Danske Hedeselskab*) with a view to testing the economic advantage of returning to the use of wood for the heating of the co-operative dairies. The result of these experiments showed that the cost of producing the steam was the same, whether twigs or coal were employed, but taking into consideration the greater expenditure for labour involved by the use of wood, it was decided that this method of heating was not advisable and the scheme was abandoned.

During the war the experiments were resumed, this time by the co-operative dairies themselves which were compelled by shortage of coal to make use of wood. This time the results obtained showed that the degree of heat produced by the use of coal at an expenditure 14.6 ore per kg., could be maintained by the use of wood costing 8.7 ore per kg. Prices during the war period were however not normal.

At the present time, owing to the crisis, the question of using firewood to a greater extent in place of coal is being once again raised in Denmark, this time by the owners of forests who find themselves obliged to undertake thinnings on a large scale. The

price of the coal imported from Poland is so low that there is no chance of selling the wood for utilisation in the kitchens of private houses; the Forestry Service, however, is of opinion that the co-operative dairies should certainly be able to substitute wood for coal once a proper organisation for utilising it has been established.

The writer, who was requested to pronounce an opinion on the subject, notes all the technical conditions which he considers necessary to this utilisation, namely: (1) the careful preparation and absolute dryness of the wood, which should be stored over a year in covered but well ventilated sheds; the length should be from 63 to 65 cm. for splitting into pieces of 8 to 10 cm.; (2) the adjustment of the boiler furnaces, no great expenditure being required to render them suitable for heating with wood; (3) the method in which the heating is carried out.

According to the writer the advisability from the economic standpoint of substituting wood for coal depends, as regards the dairies, on their local conditions, namely: the dimensions of the boilers, the kinds of trees in the locality, the dryness of the wood and the ease with which it can be split, etc.

As a basis for the price transactions with the grower, the writer proposes the following method: experimental heatings will be carried out under careful check with a type of coal specially chosen for the purpose; the average quantity of coal used for each 1000 kg. of milk in these experimental heatings, multiplied by the present price of the coal, will serve as a basis for the price of the wood.

The forests will supply the dairies with the necessary wood (well prepared and in a condition which makes it possible to maintain the steam pressure) at a price lower than, or at most equal to, that of coal, as calculated according to the amount required for 1000 kg. of milk. Thus the dairies may be assured that the cost of heating by wood will not be greater than that by coal.

The kind of wood to be supplied by each forest will be left to the discretion of the respective managing bodies, the stipulation being that it must be possible to maintain the steam pressure without difficulty. Taking into account the slight increase in the cost of labour occasioned by wood heating, the writer suggests that wood be offered to the dairies at a price from 5 to 10 % less than that of coal. He is of opinion that satisfactory results would be obtained by means of an organisation such as that outlined above, *i. e.*, the forests would obtain a market for their wood, occupation would be provided for forest workers, and the country would be relieved of the necessity of purchasing coal from abroad.

R. W.

INCREASED USE OF NATIONAL FUEL IN SWEDEN. — According to the "*Skogen*" Stockholm, No. 4, the introduction of measures for increasing the use of home-produced firewood was strongly urged in a motion (No. 388) brought by several deputies before the Second Chamber of the Swedish Riksdag.

In this motion attention is called to the fact that young thickets throughout Sweden are greatly in need of thinning. The annual production of these thinnings is calculated at over 8 million cubic metres of wood of standard dimensions, of which at present no possible use can be made. To this must be added masses of felling-refuse from large forestry undertakings as well as large quantities of dead wood, and windfalls in utilisable condition, amounting in all to a total of 35 million cubic metres.

During the last few years wood and coal have been replaced in Sweden by imported fuel. Statistics show that during the period 1926-30 the importation of combustibles increased as follows: *coal*: 3.6 million tons in 1926, 5.2 million tons in 1930; *coke*:

0.7 million tons in 1926, 1.2 million tons in 1930; fuel oils: 211.0 million litres in 1926, 400.0 million litres in 1930.

In order to remedy this seriously diminished utilisation of national resources it is urged that measures be taken to organise the use of home grown fuel for: (1) domestic purposes (heating of houses, cooking); (2) the motors of heavy vehicles, lorries, and autobus services apart from the towns belonging to the State or to contractors); all motors for heavy traffic on the highway; for short distance concession traffic on railways and finally for stationary motors in country districts serving various purposes.

The measures to be taken by Parliament as outlined in the motion are as follows:

The immediate restriction of the use of imported coke and fuel oils, in view of a rapid increase in the use of national fuel; the issue of regulations regarding the use of national fuels in State establishments and institutions; the grant of subsidies to the Traffic Administration for the purchase of motors and lorries worked by "forest gas", or gas derived from wood distillation; a grant of 5 million crowns available for loans at a low rate of interest to communes for re-lending to those concerned for the purpose of meeting the expenses of the necessary thinning, carbonisation, etc.; the issue of special regulations regarding loans on existing State funds and credits to be granted to industries for the manufacture of motors, generators, steam boilers specially constructed for wood heating, charcoal briquettes, etc.; the allocation of the sum of 100,000 crowns for pursuance of investigations as to invention of machinery and equipment specially adapted for the use of home grown fuel; finally, a Parliamentary vote of 10,000 crowns to be devoted to propaganda and instruction of the public in regard to the use of national fuels.

Another notion (No. 205), presented by several members to the First Chamber of the *Riksdag*, also asks that measures be taken for increasing the use of home grown wood as fuel, stating that this demand is made at the request of the forest owners. Certain Departmental Councils have already taken the necessary steps for ensuring the use of wood for heating of hospitals, etc. The State should take similar measures, as far as possible, with regard to establishments under its control. After enumerating the large sums assigned during recent years for heating and lighting purposes to the Service for protection and accommodation of insane persons, the motion goes on to state that the use of wood for heating purposes will be necessary not only for such institutions but also for all educational establishments, railway stations, post offices, etc.

According to the "*Skogen*", 1932, No. 10, the Swedish Government authorised the Department of Public Lands to allot the sum of 17,500 *kronor* towards building and starting a factory for the manufacture of charcoal briquettes to be used for purposes of study and experiment in this particular subject. This building is now in the course of construction and the work is being carried out as rapidly as possible. It is hoped that it may be possible to establish the fact that charcoal briquettes can compete successfully with coke. Up to a certain point they can already compete with anthracite, of which Sweden imports 75,000 tons annually.

R. W.

RESUMPTION OF THE USE OF CHARCOAL IN NORWAY. — In an article published in the "*Skogeieren*", Oslo 1932, No. 6, it is stated that efforts are being made to discover a method of utilising for the manufacture of charcoal a part, at least, of the wood which has accumulated in the forests. As a result of experiments made between Oslo and Alnabru and mentioned by M. LÖVENSKJOLD at the Congress of Norwegian Foresters held in March 1932 it appears that a lorry worked by charcoal carburant cost 3.36 *kroner* per day while one in which gasoline was used cost 9.90 *kroner*.

The use of forest gas would be highly advantageous to industry and to national economy. A motor car which covers about 40 000 km. annually would consume only 900 hectolitres of charcoal, and about 100 days work will be required to produce this quantity.

Efforts are being made at present to introduce the use of a charcoal carburant for working the motor rolling stock on Norwegian railways. To begin with it will be possible to produce the charcoal by the old system of carbonisation by crushing but later more up-to-date methods must be adopted.

In this connection M. A. FJELSTAD, (Norwegian Delegate to the International Institute of Agriculture) who was entrusted by the Department of Agriculture with the duty of examining on the spot the results obtained in France by the use of charcoal carburants as also the preparation of the charcoal, stated in his report to the Department that carbonisation of charcoal should be effected in a scientific manner to be utilised in gas producers and that in the near future a Trihan automatic furnace will be tried out in Norway. This furnace can be readily transported from place to place and produces an excellent charcoal of uniform quality.

It is proposed also to establish charcoal briquette factories. These briquettes, which take up less space, will make it possible to have smaller generators. In proportion to the space they occupy, briquettes last $2\frac{1}{2}$ times longer than charcoal crushed in the ordinary way. It will also be possible to use them for the heating of houses, thus obviating the large annual importation of coal and providing occupation for the unemployed, at the same time greatly benefiting the forest industry. In comparing the heating capacity of the various fuels it is found that dry birch gives 3,000 calories, peat 4,000, coke 6,200, coal 7,000 and charcoal briquettes 8,000. These last, manufactured in the country of origin, will have an important future as fuel in cities and their immediate environs, while in the country wood will still be used for fuel.

R. W.

THE IMPORTS OF SOFTWOODS INTO GREAT BRITAIN. — With regard to the softwood importing trade of England, the English timber-merchant, Mr. A. P. W. BAMBERGER, in an article entitled "timber from abroad" which appeared in *The Indian Forester* 1932, No. 5, states that at present, among the timber-exporting countries which form part of the British Empire, British Columbia (Canada) is the chief source of supply of softwoods. The most important softwoods of that country are Douglas fir (*Pseudotsuga taxifolia*) and silver spruce (*Picea sitchensis*) and efforts have been made towards popularizing Douglas fir in England as a substitute for European yellow deal (*Pinus sylvestris*). The properties of these two woods, however, are dissimilar and Douglas fir is not at present willingly accepted by consumers in place of the yellow deal. British Columbia's chief markets being the American Continent, the Orient and the Antipodes, her principal products are unknown to consumers of the United Kingdom. A few of the English standard dimensions are produced by British Columbia but only the fringe of the British market's requirements is so met.

Against this, England has the European softwood production at her disposal from Sweden, Finland, Russia, Norway and the lesser Baltic States. Most of these countries export at least two species of softwood timber, yellow deal and whitewood, and this material is sawn into an immense variety of sizes with almost microscopic accuracy, the goods being subjected to careful seasoning before shipment. Material that would elsewhere be treated as waste is in Europe converted into a range of small dimensions at correspondingly low prices. Needless to say, it has taken many generations for the

European trade to organise itself to its present elaborate state and until such time as the producing centres of the British Empire are similarly organised they will be labouring under a disadvantage which even the patriotic preference of the English for Empire products will not be able entirely to overcome. The Russian and Siberian softwoods are fine goods. The forests are old, the texture of the wood is mild and much of the timber is of exceptional quality.

There has recently been no dumping of Russian wood because the trade has organised itself in such a way as to make this impossible.

R. W.

UTILISATION OF PINWOOD IN EASTERN URUGUAY. — Uruguay imports annually 238,644 kg. of oil of turpentine, valued at \$ 40,091, together with 2,708,979 kg. of resin, valued at \$ 105,255.

As a result of an enquiry into the production of resin and essence of turpentine in different countries, the agricultural engineers, P. MENÉNDEZ LEEES and M. QUINTEROS (Junior), have published an article dealing with the prospects in Uruguay for utilisation of the pinewoods of the country for the purpose of meeting the internal demand for pine products, which at present have to be imported.

The writers are particularly concerned with the Maldonado pine forests, which cover an area of 4,000 ha., the average density being 1,000 trees per hectare. The predominating species is the maritime pine.

Hitherto these woods have been cultivated solely with a view to the timber industry whereas recent analyses show that they are capable of an yield of essence of turpentine varying from 18.32 to 19.84 % of resin obtained.

The Uruguay Company for the production of resin in Maldonado (*Sociedad Uruguaya de Explotación Resinera de Maldonado*) has recently been formed for the purpose of industrial exploitation of the pineforests, and will undoubtedly assure to the country the production of oil of turpentine and resin.

(P. MENÉNDEZ and M. QUINTEROS (h.). Estudio de los Pinaros del Este del Uruguay published in the *Revista de la Facultad de Agronomía*, Montevideo 1932, No. 6, págs. 235-250; fotografías, cuadros estadísticos, gráfico, etc.).

A. P.

NEW METHOD OF TAPPING. -- In the *Revue des Eaux et Forêts*, 1932, No. 2, M. A. OUDIN describes a completely new method of tapping. The system practised in France since 1844, and still in use, is defective as it is attended by the following disadvantages: considerable loss of oil of turpentine by evaporation along the cut and in the vessels, oxidation of the spirit in the air, presence of numerous impurities, excessive expenditure of labour. Although numerous experiments have been made from time to time for the improvement of the system, the only practical progress has been the addition of a small plank cover for the vessels.

According to the new process, recently devised by the Italian engineer, Sig. BELLINI DELLE STELLE (whose patents have been purchased by the *Société Landaise pour l'Amélioration du Gemmage*), a circular cut is made, protected by a kind of cylindrical box, made of metal and without floor. This is fixed in the tree without allowing any interstices and is closed by a movable cap or cover. The gum then runs by means of a small pipe into a bottle below the box; it is thus protected against evaporation, and, with the object of preserving it in the liquid state, a special catalyser is placed in each bottle.

The renewal of the cut is effected periodically by means of a special apparatus, placed on the protecting box, by which an extremely thin shaving can be sliced.

The increase of the expense involved in the installation of this new equipment will be, it appears, covered by the higher yield in really pure gum, rich in turpentine, which under the old system is lost by evaporation.

R. W.

SIXTH INTERNATIONAL BOTANICAL CONGRESS. — The Secretary, Dr. M. J. SIRKS states that, in accordance with a decision of the Fifth International Botanical Congress at Cambridge in 1930, the Sixth Congress will be held at Amsterdam from 9 to 14 September 1935. An Executive Committee has been formed, the President of which is Professor Dr. A. F. C. WENT (Utrecht), while Professor Dr. J. C. SCHOUTE (Groningen) will act as Vice-President, Dr. W. C. de IERUW (Bilthoven) as Treasurer and Dr. M. J. SIRKS (Wageningen) as Secretary. (*Bulletin of Miscellaneous Information, Royal Botanic Gardens, London, 1932, No. 3*).

THE NEXT EMPIRE FORESTRY CONFERENCE which should have been held in 1935 in the Union of South Africa will probably not take place as contemplated. The economic conditions resulting from the world crisis will make a full attendance of delegates in South Africa a matter of difficulty, and the Union Government has suggested that it would be better to postpone the Conference till more prosperous times. In the meantime, important questions affecting the trade in Empire timbers have been under discussion at the Ottawa Imperial Economic Conference in July. (*Empire Forestry Journal, Vol. II, No. 1, London 1932*).

R. W.

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(1) Previous list June 1932. To be continued December 1932.

(2) List of abbreviations: biheb. (biweekly); bimens. (twice monthly); bimestr. (every two months); étr. (foreign price); heb. (weekly); int. (home price); irr. (irregular); mens. (monthly); N. S. (new series); q. (daily); sem. (half yearly); s. (series); v. (volume); trim. (quarterly).

(3) Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

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AGRICULTURAL SCIENCE AND PRACTICE

GENERAL AGRONOMY AND CROPS OF TEMPERATE REGIONS

Improvements in Farming Technique and the Crisis.

In considering the causes and studying the manifold aspects of the agricultural crisis the influence, which in the writer's opinion is important, of factors of farming technique is invariably passed over. It is clear, however, that the phenomenon of overproduction (which does not necessarily imply excessive production) is closely dependent on improvements which have been introduced in methods of land development, harvesting, storage and transport and in the utilisation of the various agricultural products.

As soon, however, as we enter the domain of technique proper a first difficulty is encountered in the question of the estimation of the yield of a farm. The criterion universally adopted in such matters is the yield in bulk. It is customary to calculate the productivity of the soil for each product (in quintals, for example) and to compare the figures obtained in different regions or countries so as to establish the elements of a general survey which will serve as a basis for what economists rightly call a "planned economy".

For certain products the disadvantages of this system are not in reality very great. But, as soon as production is perfected it becomes dangerous to leave out of consideration the question of quality, specially when it is a matter of foodstuffs or products which are industrial raw materials. What relationship is there, for example, between two products placed on the market under the name of wine, one obtained from high-yielding vines and sold three months after being made, the other from choice vines of low productivity sold after at least three years of maturing and ageing?

Is it reasonable, it may be asked, to group together for statistical purposes high yielding potatoes grown for the starch industry in which value attaches only to the starch content, with low or medium yielding potatoes grown for food, which must in the first place possess a firm texture not liable to break in cooking and with a starch content considerably lower (6 % on an average instead of 17 %), which enters only as a secondary factor of little or no importance in fixing the market price.

Similar reasoning could be applied for all agricultural products, even those most universally grown. In the case of wheat, for example, as soon as the technique shall have reached such a degree of perfection and speed that the comparative baking quality of the numbers of varieties now grown and on the market can be determined at each harvest, the natural result will be that wheats will

be sold at rates varying according to their true baking quality, and the present rudimentary system of sale exclusively by weight will gradually be abandoned.

With this qualification in regard to the current interpretation of the statistics of agricultural production in the different countries, it will be of interest to give a general idea of the part which may be attributed to improved technique in the production, transport and utilisation of farm products.

The exploitation of land supplies a certain mass of plant and animal products of which a greater or lesser amount is utilised on the spot, while the excess is sold to the dealer, the consumer or to industries.

Any improvement in methods of production, storage, transport or utilisation tends to increase directly the mass of the products available for sale. In the case, however, of many technical improvements the effect on yield is not immediate and it is difficult to tell in advance exactly how long it will be before the improvement will become and remain effective. This is particularly the case for long term agricultural improvements such as land development or reclamation, for all fertilising problems, even with quick-acting fertilisers, for all selection work with plants or animals, for improvements in the management of slow-growing plants such as forest trees and tree fruits.

On the other hand a new machine taken into daily use, a special treatment for improving the quality or storage of a product (pre-cooling of fruits; filtration, cooling and pasteurisation of milk; control of crop pests; hygienic improvements in stock farming; etc.) show their beneficial effects immediately or after quite a short time.

It is thus advisable to be cautious in making generalisations and to remember in all circumstances that the means of applying an improvement in technique and the results that may be expected vary considerably with the locality and, for a given country, with the year.

This being understood there is no need for demonstration of the important part played by technique in all matters of agricultural production. The necessity for continually improving technique is apparent, in fact, not only in the development of new countries but in farming where cultivation has been long established, and it is concerned equally with crop production, livestock and agricultural industries.

The universal effects of the application of improved methods in land development and in the rational treatment of farm products becomes strikingly apparent when the interdependence of the various factors of agricultural production is realised.

In the first place, any improvement in the quality of the soil, whether obtained by mechanical means (ploughing, pulverising, etc.), or physico-chemical (fertilising), reacts on the quantity and quality of the crops and on the yield in animal products (meat, milk, wool, manure) and on the work capacity of draught animals. All methods of crop protection against weather (drought, excessive moisture, etc.), pests and diseases improve the output of the farm. The same applies to the breeding and management of domestic animals.

The search for selected varieties giving a higher yield per unit of area with increasing certainty and more quick growing, is perhaps at the moment the

most notable side of the constant effort towards improving his production with which the farmer is concerned even in countries where agriculture is not very far advanced.

The use of machines which economise labour and time and give regular and continuous work, particularly at harvest time, is an important factor, as is also any device or method for ensuring satisfactory storage of products (crop drying, ensilage, etc.) until a favourable season for marketing or utilisation and, in case of crisis, from one year to the next.

The same considerations being applicable in varying degree to all farm products their enumeration may seem to lack interest as being self-evident.

Let us take for example the case of wheat. During many years and in the course of numbers of conferences the problem of harmonising the wheat production of the different countries has had to be solved, but without a successful way out of the inextricable situation having been found. It has recently come to be realised that the only way to surmount the crises of overproduction is to find a use for the surplus. This immediately sets the eminently technical problems of the search for new markets for wheat and of increasing its consumption as food by improving the quality of the bread.

The same applies for all agricultural products of which there is a surplus. The fundamental question at the present time therefore suggests a simple proposition, namely, to substitute for the radical but economically and socially absurd solution by the destruction of stocks (coffee, wheat, etc.), the search for new methods of utilisation, a more difficult task requiring work and ingenuity.

It would now appear absolutely indisputable that in order to bring the struggle against overproduction to a successful issue predominance must be given to technical considerations in the study of practical and effective solutions.

GEORGES RAY.

Miscellanea.

I. — GENERAL AGRONOMY

Meteorology

ORGANISATION OF METEOROLOGICAL SERVICES IN THE FRENCH COLONIES. — The Meteorological Services of the French Colonies are subdivided into Services of the Mediterranean Basin (Algeria, Tunisia, Morocco, Levant States under French Mandate) and Services of the Colonies.

(1) *Services of the Mediterranean Basin.* — In Algeria the Meteorological Service undertakes all the meteorological operations excepting the protection of aerial navigation. It comprises 40 stations of the first grade, 60 stations of the second grade, 200 stations of the third grade and 1 agricultural meteorological station.

The Meteorological Service of Tunisia is made up of 345 stations in addition to the central office in Tunis.

The Meteorological Services of Morocco are under the "Service de Physique du Globe" of Morocco. The system for meteorology consists of 1 central station, 5 first-grade auxiliary stations and 62 second-grade auxiliary stations.

The Central Meteorological Service of the Levant States has a network of information posts including in addition to the central station of Ksara, 9 coastal stations, 9 supplementary stations and 30 second-grade posts.

(2) *Services of the French Colonies.* — The Meteorological Service of Indo-China comprises 1 central station with an observatory at Plu-Sien, 13 first-grade stations, 70 climatological stations and 326 pluviometric stations.

The Meteorological Service of French West Africa includes besides the head office at Dakar, 1 main station, 54 first-grade stations and 134 second-grade stations.

The Meteorological Station of French Equatorial Africa is in course of organisation and comprises 1 central office, 15 main stations, 9 first-grade stations and second-grade stations in all the administrative posts.

The new Meteorological Service of Madagascar includes or will include the following stations:— 5 main stations, 22 first-grade stations and 40 second-grade stations.

The programme for the organisation of the Meteorological Service of Cameroon includes the formation of 1 central office, 4 main stations, 8 first-grade stations and 10 second-grade stations.

The meteorological system provided for Togoland will consist of 1 central office, 2 main stations, 4 first-grade stations and 6 second-grade stations.

The Meteorological Service of Saint-Pierre and Miquelon is in process of organisation; a climatological station is already functioning at Saint-Pierre.

At Martinique there have been planned for 1932 1 main station, 1 first-grade station and 10 second-grade stations.

The Meteorological Services of the French Settlements in Oceania, now in course of reorganisation, consist of 1 main station, 3 first-grade stations and 6 second-grade stations.

In the Island of Reunion there is a group of 6 climatological stations.

The formation of a Service for the French Possessions in India and on the Somaliland coast is not yet planned, but it is intended to organise Services in the near future in Guadeloupe, New Caledonia and French Guiana.

(H. HUBERT, *Revue de Botanique Appliquée et d'Agriculture Tropicale*, Paris 1932, No. 127).

RAIN PRODUCED BY LIGHTNING. — During storms it is often observed that rain increases immediately after an electric discharge, but it has not been possible to prove a relation of cause and effect between the two phenomena, for they might both be produced simultaneously by the same cause, for example a current of air rising and causing at the same time an accumulation of electric charge and an increase of rain.

Now it seems there can no longer be doubt that lightning may produce an increase of rain, since the following observations published by Prof. W. GERLACH of the University of Munich:— "In 1925 I was in the Black Forest on a plateau at a height of 700 m near Fribourg-en-Brisgau, from which there is a view embracing all this mountainous region. The sun was shining, but the bottom of the valley was hidden by a thick mist and storm was in the air as witnessed distant incessant rumbling of thunder. Suddenly a flash of lightning tore the veil of mist and *immediately afterwards* a heavy shower was produced; *in less than a minute all the rain had fallen*, then the high clouds dispersed and the sky cleared". "There can be no doubt", he adds, "that the electric discharge had transformed the fine droplets of suspended water of the fog into large drops of rain. The shower was a phenomenon caused by the electricity of the air".

(A. SCHMAUSS (München), Koagulation durch Blitz, *Meteorologische Zeitschrift*, Braunschweig 1931, Heft 12, p. 508).

TORNADOES IN THE UNITED STATES DURING 1931. — In the *Monthly Weather Review* for December 1931 H. C. HUNTER of the United States Weather Bureau publishes a preliminary statement (dated 2 February 1932) showing that during 1931 there were in the United States 89 tornadoes, causing 34 deaths and damage valued at 1,826,000 dollars. As usually, these tornadoes were most numerous in the hottest months (May to September), but the greatest loss of life (14 deaths) was in December, although this usually is the season of least tornado activity.

Although serious, the number of tornadoes and the damage they caused were considerably less than in any recent year, and the loss of life was less than half the least in any of the preceding 15 years.

T. B.

Soil Science

IRON IN RELATION TO THE STIMULATION OF GROWTH BY HUMIC ACID. — An exhaustive study of this subject has been carried out by D. BURK, H. LINEWEAVER and C. K. HORNER at the Bureau of Chemistry and Soils of the United States Department of Agriculture. The following are their main results:—

Humic acid causes stimulation of the growth of *Azotobacter* primarily by virtue of its iron component; other inorganic impurities and the organic fraction are substantially inactive.

Natural humic acid may be replaced more or less satisfactorily by: (a) complex, non-ionised organic acid iron such as ferric citrate, tartrate, oxalate; (b) inorganic iron such as ferric sulphate, metallic iron; (c) humic acids prepared synthetically from glucose and ferric sulphate and containing considerable quantities of iron.

Natural humic acid could not be replaced by: (a) humic acids prepared synthetically from glucose to contain no iron, or as little iron as possible; (b) iron-free synthetic humic acids containing various metals such as Al, Co, Mn, Si, Mo and P; (c) salts of such elements as Al, Co, Mn, Mo, Ni, Zn, Cr, Cu and Ag at various metal concentrations ranging from 0.01 to 50 p. p. m.

The activity of natural humic acid may be increased by synthetically increasing its iron content.

Under conditions where humic acid exerted no stimulative effect the iron substitution compounds likewise exerted no effect, even though other chemical substances and physiological conditions could at the same time increase the growth rate considerably.

An optimum amount of soluble iron (about 0.2 to 1 p. p. m.) gives the same order of magnitude of increased growth, independently of whether the iron is added as contained in natural humic acid or in any of its substitution compounds. Natural humic acids however begin to exert stimulation some hours sooner than organic acid iron compounds, and the latter again somewhat sooner than inorganic iron compounds. The synthetic iron-containing humic acids behave similarly to the natural ones. Consequently in experiments of relatively short duration it will often be found that inorganic iron, and even organic acid iron, will provide considerably less satisfactory stimulation than iron contained in natural or synthetic humic acids.

Humic acid may be classed as both a nutrient which provides iron for growth and nutrition, and a stimulant which provides iron in a form in general *more highly available* than that usually supplied in the medium. Humic acid is not a plant vitamin nor any other constituent essential to the medium, since it may be replaced by other substances containing iron.

Humic acid does not act by increasing directly the availability of constituents normally added to, or present in, the medium, viz., glucose, oxygen, free or fixed nitrogen, CO_2 , Ca, Mg, Na, K, Fe, PO_4 , Cl, SO_4 ; or by deactivating toxic metabolic products; or by affecting the surface tension, viscosity, or potential difference between culture medium and organism.

As regards the rôle of the calcium contained in humus it was found that like many other inorganic and organic compounds of calcium, synthetically prepared calcium humate may supply calcium to *Azotobacter* in a calcium-free medium, but in a form no more available than that usually supplied in the medium (calcium sulphate).

These results strictly apply only to *Azotobacter*, but there are many reasons for believing them to be of widespread application.

(*Soil Science*, Baltimore 1932, Vol. 33, No. 6, pp. 413-453, 454-487).

THE ORIGIN OF THE HUMIC MATTER OF THE SOIL. — According to H. J. PAGE, who describes research on this subject in the *Journal of Agricultural Science* (London 1932, Vol. 22, Part I, pp. 115-125; Part II, pp. 291-296), humic matter obtained artificially from cellulose, hydroquinone and lignin was only qualitatively similar to the natural humic matter of the soil. Quantitative comparisons revealed important differences, particularly in the absence of nitrogen. The natural products contained appreciable quantities of nitrogen: 5.36 % in the case of the soil product, and 2.60 and 2.37 % respectively for the "Adco" and peat (Dopplerite) products.

The elaborate method of purification to which all the preparations were submitted makes it unlikely that the nitrogen was present in the form of impurities. It must be considered therefore that it is present in a form which is not readily removed, a suggestion which is not incompatible with the lignin hypothesis of the origin of humic matter. The process in the soil might consist in the conversion of lignin into humic matter in the presence of nitrogenous materials which were combined in the resulting product. This possibility will be further examined by the writer, with special reference to the part played by micro-organisms in the formation of soil organic matter and in the carbon and nitrogen cycles.

(The preceding information gives a glimpse of the rôle of *Azotobacter* in the nitrogen enrichment of soil humus. It would be of interest to determine whether this organism is the main agent concerned. *Ed. note*).

T. B.

Fertilisers and Fertilising

PREPARATION OF ARTIFICIAL MANURE FROM STRAW. — In the *Journal d'Agriculture pratique* (1932, No. 10) MM. DEMOLON and BURGEVIN give practical directions for making artificial manure.

Method. — A floor or platform, preferably with a small purin tank (capacity 10 cu. m. for 100 cu. m. of manure) should be used.

A bed of straw is laid about 80 cm. in thickness and watered at least 3 times (in the morning, evening and following morning) with about 2400 litres of water per ton of straw, or 800 litres at each watering. The surface is then strewn with a little fresh farmyard manure (1 to 2 kg. per sq. m.) and a suitable nutritive mixture (see below) added at a rate of 2.5 kg. of nitrogen per ton of straw; finally the heap is watered lightly to ensure the soluble products and ferments penetrating the entire mass.

After 1 to 2 days the temperature in zones of the heap is found to have risen. When a uniform temperature of 50-60° is reached, which may require 5-6 days, more straw may be added and the process repeated, with the exception of the addition of manure.

When fermentation is well established in the first layer the following layers will be much more readily moistened and further loads can be added every 4 or 5 days. It is advisable to water with the small quantity of purin that exudes from the heap.

The amount of straw to be used is 175-200 kg per sq. m., in 5 successive loads.

Care must be taken to surround the heap with bales of straw to prevent desiccation and lack of decomposition of the outer portions.

Nutritive mixtures. — The 3 following formulae may be used :—

	Ammonium sulphate	Potassium sulphate	Ammonium phosphate	Dicalcium phosphate	Urea	Quantity per ton of straw
Formula I	40 kg	30 kg	30 kg	—	—	18 kg
" II	50 "	20 "	—	30 kg	—	25 "
" III	—	—	—	—	5 kg	5 "

or any other suitable mixture.

Inspection of progress. — The temperature is followed by means of a soil thermometer inserted into a hole made in the heap with a pointed stake. The temperature should reach 65-70° in the first phase of the operation and then remain at about 50°.

Duration. — The time taken to complete the process is about 3 months including the time of loading.

Output of manure with 80 % moisture content. — This may be said to be 2.7 to 2.8 times the weight of straw, so that a floor of 100 sq. m will yield about 50 tons of manure in 3 months.

TRADE IN POTASH SALTS IN THE UNITED STATES DURING 1931. — It appears from information supplied by the U. S. Bureau of Mines that in 1931 the country produced about 121 490 tons of potash salts (equivalent to about 57 951 tons of K_2O), which were almost entirely marketed directly by the producers and realised a sum of 3 086 955 dollars, an increase of 3 % on the sales of 1930.

The increase in production was due to the opening of a new mine near Carlsbad (New Mexico) which, together with the potash from the salt beds of California and the Maryland molasses distillery residues, furnished the greater part of the 1931 output. A certain quantity of alunite ($K_2SO_4 \cdot 3Al_2(SO_4)_3 \cdot 6H_2O$) produced in the States of Nevada and Utah was ground and marketed as potash manure. Cotton-bolls ash was also sold for the same purpose.

According to the Bureau of Commerce (Home and Foreign) there was a marked diminution of the imports of potash salts for fertiliser in 1931 as compared with 1930, but this was counterbalanced by a considerably greater increase in exports, as is shown in the following table drawn up from the Bureau's statistics.

	Quantities		Value	
	Tons	Increase (+) or decrease (—) in regard to 1930	Dollars	Increase (+) or decrease (—) in regard to 1930
<i>Imports:</i>				
Total potash salts.	524 949	— 41 %	16 506 069	— 33 %
(Equivalent in K ₂ O)	(195 520)	—	—	—
Comprising:				
Salts for fertiliser.	479 191	— 43 %	12 221 990	— 39 %
Salts for chemical industries. .	45 758	+ 10 %	4 284 079	— 7 %
<i>Exports:</i>				
Total potash salts.	31 405	—	1 638 044	—
Comprising:				
Potassium chloride	29 294	} + 90 %	1 228 584	} + 97 %
Other salts for fertilising . . .	1 060		38 525	
Non-fertilising salts	1 051	— 8 %	370 935	— 26 %

(The American Fertilizer, Philadelphia 1932, Vol. 76, No. 9, p. 11).

T. B.

Ecology

INFLUENCE OF METEOROLOGICAL FACTORS ON THE GLUTEN CONTENT OF WHEAT. — A study has been made of this subject by Dr. BRICCOLI at the Ecological Laboratory of the Agricultural Institute at Perugia (Italy), utilising data and material supplied by a series of ecological stations from North Africa to Scandinavia, and working under the direction of the International Centre for Coordination of Agricultural Ecological and Genetical Research. These stations made the trials in 1928, with 8 varieties of wheat coming respectively from Italy, Switzerland, Germany, Sweden and Norway. The following are the main results as published in *La Meteorologia pratica* (1931, No. 5).

(1) Environment has a marked effect on gluten formation, the differences in mean gluten content of all varieties between the extreme stations being in every case definitely greater than the differences between the varieties on a single station.

(2) Humidity of the atmosphere (nebulosity, rain) reduces gluten content, while temperature and light (insolation) raises it.

(3) There is close correlation between the specific weight of the grain and gluten content.

(4) There is no relation between the quantity of gluten produced and its quality (flexibility, elasticity).

(5) Amongst the varieties of wheat tested the following were found best: *Timilia* (Sicily) for temperatures of about 23.6° C. — *Marzatico* (Central Italy) for temperatures of about 19.7° — *Janetzki* (Upper Silesia) and *Dala* (Central Sweden) for temperatures of about 13.3°.

(6) There is an inverse correlation, often well marked, between yield in grain to the acre and quality of the grain as measured by its gluten content: a high gluten content corresponds to a low yield and vice versa.

T. B.

II. — CROPS OF TEMPERATE REGIONS.

CLASSIFICATION OF WHEAT VARIETIES OF SOUTHERN AUSTRALIA. — The varieties of wheat grown in Australia have already been classified and described by the Institute of Science and Industry (1923). The work indicated below classifies anew in accordance with the methods adopted by the United States Department of Agriculture. Upwards of 100 varieties are described as regards their principal and secondary characteristics. (H. G. GURNEY, *The Journal of the Department of Agriculture of South Australia*. Adelaide 1932, Vol. XXXV, No. 11).

A. P.

THE RÔLE OF NITROGEN IN THE PRODUCTION OF SPOTS IN WHEAT FIELDS. — In the *Journal of Agricultural Research* 1932, No. 3, P. L. GAINES and M. C. SEWELL of the Kansas Agricultural Experiment Station give the results of 3 years' study of the rôle of nitrogen in the production of the type of spot frequently observed in small-grain fields in Kansas. These spots are almost invariably accompanied by a higher total nitrogen content of the soil, higher NO_3 content of the soil, higher percentage nitrogen composition of the growing plant, higher total nitrogen absorption, higher yield of grain and higher protein content of the grain.

The increased total and available nitrogen in the soil of the spot does not appear to be associated with a more active nitrogen-fixing or nitrifying microflora. Spots identical in appearance and in quantitative measurements have been produced experimentally by the application of cow urine and certain other nitrogen-containing materials. All evidence thus far obtained points to the conclusion that the spots are the direct result of the presence of a more abundant supply of available nitrogen in the soil of these limited areas, particularly during the spring growing period; and that this increased available nitrogen has arisen from a limited quantity of nitrogen, either already available or capable of being readily transformed into an available condition, finding its way into the soil, in most instances through the deposition of urine.

D. K.

EFFECTS OF SIZE OF CROWN AND DURATION OF CUTTING PERIOD ON THE ASPARAGUS CROP. — In the *Journal of Agricultural Research* for July 1932 (No. 2) E. S. HABER of the Iowa Experiment Station gives an account of a study of this subject. His main results were as follows.

In view of the impossibility of determining the sex of a one-year-old asparagus plant in the Northern States and the fact that the weight of the female crowns is considerably less on an average than that of the male crowns, it would be advisable to cull very small crowns; this would also make possible the retention of a larger number of male crowns.

The comparative trials have given results corroborating those of a number of other workers and show that male plants produce a greater number of shoots and a greater crop per stool than female plants, and that female crowns produce shoots of larger diameter.

It was observed that a significant correlation exists in male asparagus plants between the weight of the one-year-old crown at time of planting and the number of shoots and total weight of shoots produced during the first 3 cutting seasons. There was no correlation between the weight of the crown at planting and the mean weight

of shoots produced. Female plants showed during 1930 a negative correlation between the weight of crown and the number and total crop of shoots, but in the preceding and following years no such correlation was observed.

D. K.

OLIVE GROWING IN MOROCCO. — The climate of Morocco is well adapted for olive growing and the most suitable regions are Djebala, Onergha, Fez, Meknes, Sous, Le Haour and Marrakech. The total number of olives is 5,465,000, of which only 250,000 belong to Europeans. The districts where olive growing is most developed are those of Fez and Marrakech. The total production is from 600,000 to 900,000 quintals of olives per annum. The number of varieties is limited to the large Tlemcen olive, the Seville, the 'verdale', the Meslala and the 'berri'. As the olive growing is mainly in the hands of natives the production is not the maximum possible. The industry is encouraged by exemption of new plantations from taxation for the first 20 years [and by an award of 3 francs per tree for all plantations in which] the trees are in good condition 1 year after planting. (OFFICE DE RENSEIGNEMENTS AGRICOLES DU MAROC, *La Revue Oléicole*, Nice 1932, No. 313, pp. 170-177).

A. P.

AGRICULTURAL ENGINEERING

Miscellanea.

XVIIth INTERNATIONAL EXHIBITION OF MECHANICAL CULTIVATION, ESSONNES, FRANCE. OCTOBER 1932. — This exhibition was held at Essonnes, near Corbeil, on 1, 2 and 8, 9 October 1932. The exhibits were fewer than in former years but not lacking in interest. It was clearly demonstrated that in France as in Germany and England the tendency in tractor construction is leaning more and more towards the heavy oil engine.

In the small horticultural tractor section a tendency to substitute the windlass for direct traction was noted.

Gas generators are always of interest though research is being directed towards the use of heavy oils and oils of plant origin, which is of special importance, particularly in the colonies.

Electric ploughs were shown particularly by the 'Société Générale Agricole' which for some 20 years has specialised in this branch and has produced several heavy and light types with two windlasses acting alternately and drawing a balance or other plough by means of a steel cable.

EXPERIMENTAL MECHANISATION OF A VILLAGE IN GERMANY. — The perpetual discussions of a more or less theoretical nature regarding the economic utility of mechanisation not having led to any positive result, Prof. MÜNZINGER conceived the idea of introducing mechanical methods throughout a whole village by way of a practical experiment. With the help of the *Reichskuratorium für Technik in der Landwirtschaft* (Agricultural Engineering Council of the German Government) the experiments have already been carried out over 2 years. A report of the results obtained up to the present has been published by Prof. MÜNZINGER in *Die Technik in der Landwirtschaft*, Berlin 1932, Nos. 8 and 9. The following is a résumé.

The village selected for the experiments is *Häusern* which is in Württemberg at an altitude of 650 metres. The total number of farms in the village is 10, covering an acreage of 210 ha., of which 144 are arable, 58 meadow or pasture and 8 woodland.

Only 8 of the 10 farms took part in the experiments. The village is not well situated meteorologically and the period available for tillage in spring and autumn is very short. On account of this difficulty the cultural operations require a relatively large number of draught animals which are little used during the rest of the year. These peculiar conditions make the village well adapted to power farming experiments, for the costs of upkeep of tractors while not in use are bound to be less than the cost of keeping and feeding animals.

A common system of crop rotation was adopted and the machines were worked over the whole land.

The crops were harvested separately except in the case of cereals, for which the reaper-binder worked the fields as a whole and each farmer received the sheaves which fell on his own land.

The cereals were for the most part treated in a common installation for the cleaning, selection and disinfection of seed. Higher prices were obtained on the market owing to the uniform quality of the produce, the variety grown and the uniformity of treatment.

The experiments were not intended to eliminate human labour by the substitution of machinery but rather to render the existing labour more effective and the work less arduous.

The experiment was not confined to cultivation but included other activities of the farm. An electric baking oven, an electric washing machine, a grain-cleaning plant and a meat-canning plant were installed.

All these installations have proved an economic success. As regards baking it was found that though a coal oven would perhaps have been cheaper to run, the electric oven is easier to manage and better from a hygienic standpoint.

The results obtained with the washing machine have been of particular interest and it has been proved that by means of the machine a single person can in 3 to 4 hours do the work which usually occupies 2 persons for 2 to 3 days. The advantages of the grain cleaning plant have already been mentioned. The canning of meat is of considerable importance for the village for the animals are slaughtered mainly in winter and in the summer it is often necessary to buy from elsewhere. The canning plant is very simple and allows of the use of the same containers as many as 10 or 20 times.

All the machinery is in a building specially constructed for the purpose.

Two milking machines also are in use and up to the present have given good results from all points of view as a consequence of the care taken in cleaning.

For the storage of manure the farms are provided with a system of purin tanks with large compartments.

The accounts which are kept for each farm taking part in the experiment give an idea of the economic results which may be obtained by mechanisation of the village, but cannot be compared with those for the preceding period which lacked any kind of control.

It may be stated however that the farming of the land in common and the simplification of the various farm operations by the use of machinery have had a very marked effect on the revenue of the village as well as on the work.

Among the 8 farms taking part in the new system the best economic results were obtained by those which retained only cows for draught purposes, while those which kept a few horses had lower profits though still well in advance of those of earlier years.

THE LOGICAL FUTURE DEVELOPMENT OF RESEARCH IN AGRICULTURAL ENGINEERING.
— In a paper presented at a session of College Division during the 26th annual meeting of the American Society of Agricultural Engineers at Ohio State University, June 1932, R. W. TRULLINGER explained his ideas on the future development of research in agricultural engineering.

In the U. S. A. the agricultural-engineering research programme of the past has been replete with surveys, general investigations, and comparative testing. Almost everything of an engineering character in agriculture has been surveyed and investigated, and thus has provided a background of information as to the general character of the problems involved. With this background of information it would seem that the logical future development of research in the better known branches of agricultural engineering should be along lines of the fundamental solution of important basic problems and of the experimental development and adaptation of engineering methods and equipment. The 'U. S. A. Committee on Experiment Station Organisation and Policy of the Association of Land-Grant Colleges and Universities' suggests that the procedure of agricultural engineering research should be up-to-date, representing the progress and current views on technique and methods. It should give data that will stand statistical analysis and will be comparable with other similar accepted data; it should consider fully the agricultural features involved and should be a highly coordinated undertaking. There will be cooperation between local, and regional and national and international bodies in the study of problems, the fundamental solution of which may not be possible without a large exchange of ideas. There also will be the coordination of public and private research so essential to complete the cycle of engineering service to agriculture.

(*Agricultural Engineering*, St. Joseph (Michigan), September 1932).

H. J. H.

ANIMAL HUSBANDRY

Stock Farming in the Danubian Countries: Fat Stock.

By Danubian countries are understood for the purposes of this article, Austria, Hungary, Rumania, Czechoslovakia and Yugoslavia, which are the countries included under this name in the "*Etudes relatives au problème des Rapprochements économiques européens*" published by the Economic Committee of the League of Nations. The territory covered is mainly that of the old Austria-Hungarian monarchy, reduced by the regions annexed to Poland and Italy and extended by the old Serbia, Rumania, Bessarabia and the small State of Hlučín which has passed from Germany to Czechoslovakia.

The conditions imposed by the peace treaties have profoundly altered the economy of the Danube Basin. They have divided into 5 States a territory which hitherto had been under a single tariff system and had for centuries been directed in accordance with the same political economy, namely that which governed the economic development of the Monarchy. The territory so divided is expanded to include territories previously independent or belonging to other States administered according to other economic principles and so having developed along divergent lines.

The divergent development of the regions is apparent also in their different economic structure. At the conclusion of peace the northern and western regions were principally industrial while the east, south-east and south were mainly agricultural. Consequently the agriculture of the industrial regions and their vicinity was more intensive and passed gradually towards the west and south into a non-intensive system.

It also followed from this diversity of economic structure that the two countries situated in the west, Austria and Czechoslovakia, imported most of their agricultural produce, while Hungary, Rumania and Yugoslavia had to export their surplus.

The equilibrium of the economic development thus upset by the peace treaties has not so far been restored and remains the kernel of the Danube economic problem which is so much under discussion at the moment.

The present article gives only a rapid survey of part of our work on the agricultural relationships of the Danubian countries, that dealing with problems of the production of fat stock, of meat and fat. It is proposed to treat the countries as a whole rather than each individually. Economic questions will be dealt with first and then after a rapid survey of the technical problems common to the region, the present tendencies in development will be discussed.

I. — ECONOMIC QUESTIONS RELATING TO THE PRODUCTION OF FAT STOCK IN THE DANUBIAN COUNTRIES. — The greater number of the recently published studies of the Danube question deal also with the agricultural relationships of the Danubian countries, recognising that they represent one of the principal aspects of the problem. Unfortunately most writers are concerned only with the question of the grain crops. The place occupied by cereals in the production of the Danubian countries is indisputable, particularly in the agricultural countries of the group. But though the importance of this branch of production is fully recognised, the exclusive study of grain cannot give an accurate idea of the general development of agriculture in the countries in question.

To study the agricultural situation in the whole Danube basin it is not sufficient to examine any single branch of production. There would be all the more risk of getting an erroneous view of the situation since the post-war changes in farming have led to changes in the relative importance of the various branches of agriculture. Thus it is observed that as compared with the past there is a tendency to set a higher value on stock farming at the expense of grain.

Statistics show the importance of animal production in the foreign commerce of these countries and its increasing influence on their trade balance and economy. Meat production forming a considerable part of the animal production it is justifiable to study this branch. The Hungarian trade balance figures demonstrate the recent development. In 1928 the value of the animal products formed 22.3 % of the total exports; in 1929 it rose to 25.10 %, in 1930 to 35.16 % and in 1931 to 32.56 %. In the same time the value of the grain and flour exported sank from 27.35 % in 1928, to 26.26 % in 1929, to 20.40 % in 1930 and 14.42 % in 1931.

It is clear from these figures that from 1927 to 1931 the percentage of animal products in the total exports of Hungary considerably increased while the exports

of grain and flour diminished till the relative importance of the percentages was inverted. The Rumanian statistics show that in that country there was the same tendency in a lesser degree. In Yugoslavia for many years animal products have occupied a higher place than cereals and cereal products. This preponderance of stock farming products was maintained with a remarkable stability from 1927 to 1931 while the grain exports were in a continual state of fluctuation. It may be stated that the fall in the price of cereals made itself felt in the Danubian countries only from the second quarter of 1928 and that this led to a decrease in the value of the cereals exported. Consequently the importance of animal products for the trade balance and national economy increased. The figures quoted also show how greatly the importance of animal products has increased. It is clear that this results from the prices of these products not having immediately followed the fall in those of cereals but remained for some time at about the same level. For a certain time there was a marked difference between the prices per kilo of live weight of fat stock and those of the feedstuffs. With the progress of the grain crisis this movement in favour of livestock has been accentuated. It should however be mentioned that other factors also have affected the stock breeding industry.

Agriculture underwent great changes in the Danube countries during the post-war years. Without going in detail into the factors which have caused these changes and leaving on one side the new tendencies in production which have resulted, some of the factors must be indicated which have exercised a decisive influence on the development of agriculture in these regions. Thus there have been the breaking up of the territory of the old Austro-Hungarian kingdom and the overthrow of its economic equilibrium, the annexing of new regions which had in the past a different character and were nearly exclusively agricultural, agrarian reforms, the world crisis, and finally, following on all these changes, the new direction of the economic policy of the new States under the influence of the new situation.

In theory it was to be expected that these changes would lead to an increased development of stock farming. It was hoped that the agrarian reform would bring about an increase in the head of stock and even some improvement in quality. Similarly it was expected that if the old producing regions had encountered in the old markets the competition of overseas countries producing under more favourable conditions, this competition would be less in the case of fat stock than of grain. It was also reckoned that the grain crisis would lead to an increase in animal production in consequence of the fall in the cost of concentrates.

These hopes however were realised only in part. If to-day the situation of the breeder in the Danube countries is examined, it is found that in spite of the increased importance of stock farming in the national economy [of each of these countries, the position of the stock farmer is scarcely more satisfactory than that of the arable farmer.

The causes of this state of things are multiple. In this regard the hopes founded on the *agrarian reform* have not been universally justified, for, particularly in the vast regions where agriculture is not on the intensive system, scarcely any improvements in stock farming have resulted.

As regards *competition*, it is true that overseas competition has had less influence on the possibilities of exporting meat and meat animals than grain from

the Danube countries, but on the other hand other countries such as Poland, only one part of which, namely Galicia, formerly supplied the Danube markets, have begun to become serious competitors. Further, overseas countries are beginning to dominate the Danubian markets for certain products of animal origin which are sold wholesale, such as, for example, fat.

If the effect of the *grain crisis* on stock farming is studied it cannot be denied that the latter has been stimulated, more particularly as at this moment the marketing of the surplus was easy. These favourable conditions did not last long, for the general economic depression, specially from the second quarter of 1931, forced the importing countries to become self supporting and the closing of the markets caused a catastrophic slump in prices in the exporting countries.

The situation, however, caused by the new *delimitation of frontiers* had decisive consequences for the industry. The peace treaties divided the Danube basin into countries separated by customs barriers and the territories with surplus production were separated from their old markets. Besides, the States which had become independent undertook a policy of autonomous production very different from that followed previously and were thus obliged to establish conditions which changed the total production.

The present situation is clearly shown by the state of the *foreign trade*. It is therefore indispensable to touch briefly on the question of imports and exports in order to give an accurate idea of the situation.

Thus the *exports* of cattle from Hungary, Yugoslavia and Rumania combined increased considerably from 1928 to 1930: they rose from 251,500 head in 1928 to 448,000 head in 1930. The number of sheep and lambs exported was 956,000 head in 1928; as a result of a fall in the Yugoslavia exports the number was reduced to 745,000, in spite of the rise in exports from Hungary and Rumania. As regards pig exports, Rumania and Yugoslavia exported in 1928, 515,000 head, 604,000 in 1929, with a drop to 588,000 in 1930. Beef exports have steadily increased from 92,000 quintals in 1927 to 161,000 in 1930. From 1927 to 1930 the amount of pork exported varied from 70,000 to 78 000 quintals; in 1928 however it fell to 50,000 quintals.

Let us compare these figures with those of the importing countries: Austria and Czechoslovakia. In 1927 the *imports* of cattle, including calves, of these countries together were 196,000 head; this figure fell in 1928 to 189,000, then rose again to 218,700 in 1930. A comparison of the imports of Austria with those of Czechoslovakia shows that from 1928 to 1930 Austrian imports were falling, while those of Czechoslovakia were increasing. Imports of live pigs into the two countries combined reached their maximum in this period with 1,776,200 head in 1928, then fell to 1,273,400 head in 1930. As a meat importing country Austria (in 1927 365,900 quintals; in 1929 and 1930 about 330,000 quintals) is well ahead of Czechoslovakia, of which the imports fell from about 42,000 quintals between 1927 and 1929 to 32 000 quintals in 1930. It should be realised also that Czechoslovakia exports considerable quantities of cured pork (ham): 10,000 to 15,000 quintals.

From 1931, and particularly from the second half of the year, a retrogressive movement is apparent in both exports and imports. The consequences of the

extension of the general crisis made themselves felt particularly in the export of livestock. The movement towards autarchy becoming more and more accentuated, the restrictions limiting importation seriously hampered exportation. Finally, the precarious financial situation of farmers forced them to sell their stock at any price they could get. This had a disastrous effect on the market. In 1931 the exports of cattle from Hungary fell from 167,000 to 101,000 head ; those from Yugoslavia from 136,000 to 109,000 ; those from Rumania from 125,000 to 99,000. Exports of live and dead poultry remained fairly constant during the year, whereas the value and quantity of the exports of all the other classes of livestock, meat and fat were greatly diminished.

The importing Danube countries have been more and more forced by active political means to become self-supporting and have therefore encouraged stock breeding and limited imports. They have by these means succeeded in supplying the country's requirements to a greater degree than in the past. It is somewhat strange that this has been achieved by buying the necessary feeds at very low prices, and often even at prices reduced by exportation grants, from the stock breeding countries themselves. It is necessary however to take into account a general diminution in the consumption of meat.

Statistics make surprising revelations concerning the *reduction in imports* ; thus for example in 1931 the number of cattle imported by Austria fell by about 35 % and their value by about 40 %. In relation to 1930 the value of the imported pigs was 17 % lower and the quantity 13 % lower. This movement continued until December 1931 when the value of the animals and meat imported was 70 % below that in the same month in 1930. For Czechoslovakia the case was approximately the same. This tendency to restrict imports is still on the increase in 1932.

A comparison of exports and imports will show the trade in the products in question in the Danube countries. During the time that the exports of cattle were increasing there is an increase in imports, but this latter movement is less marked than the former. Further, the demand of the Danube importing States is less than the Danube exporters are able to supply. Of sheep Czechoslovakia buys only relatively small quantities and Austria is inconsiderable. As regards pigs, the situation is the reverse of that relating to cattle, the quantities exported by Hungary, Yugoslavia and Rumania being less than the imports of Austria and Czechoslovakia. The Danube exporting countries are unable to profit from the apparently favourable opportunity of these markets because Poland dominates the market to such an extent that competition is impossible. There is also a marked difference in the products : Poland supplying mainly pork breeds and the Danube countries exporting fat pigs.

The *meat trade* is difficult to deal with shortly owing to the importance of the various qualities and specialities. Besides, the quantities imported by the purchasing Danube countries exceed the quantities exported by the other group. But a part only of these products may enter the Danube markets, for in the case of certain specialities the possibilities of sale are limited.

The products of the exporting countries which do not find an outlet in the Danube Basin are sent to distant markets which, for reasons already explained,

are becoming of increasing importance : thus, for cattle, principally Italy, Greece, Switzerland and France ; for sheep, Greece, France and Switzerland ; for live and dead poultry and meat, Germany, Italy, Great Britain and Switzerland.

The competitors on the Danube markets — Austria and Czechoslovakia — are principally Poland and overseas countries. Poland is the chief competitor on the pig market and specially on that of pork breeds. It takes an important place also on the market of fresh and cured meat, also of live calves, thus affecting the live cattle market because veal is more in demand than formerly. Overseas countries play an important part on the meat market but still more on the fat market, which they dominate. The fact that in 1929 and 1930 the United States supplied 93 to 94 % of the requirements of Austria explains the present situation. The same is practically the case for Czechoslovakia. It would be superfluous to emphasize that the American fat invades the markets to the detriment of the fat pigs coming from the Danube agricultural countries, which have always been great producers.

This short survey of the commerce in fat stock, meat and fat in the Danube Basin shows that the breaking up of the old Austria-Hungary has extended the regions supplying the Danubian markets, of which the purchasing power is continuously diminishing, and that, on the other hand, the exporting Danube countries have found new outlets. The more distant markets are, in fact, acquiring increasing importance for the exporting countries, because these are obliged to place there a great quantity of their produce. It is important that these markets should be maintained, since experience shows that agriculture is better able to withstand a period of crisis the more varied are its products.

In bringing these considerations to a conclusion it should be observed that disorder in the marketing of the Danube produce is a serious hindrance even to the production of the other countries, menacing thus the equilibrium of the new markets.

II. — TECHNICAL PROBLEMS OF BREEDING FOR MEAT IN THE DANUBIAN COUNTRIES. — After this brief report on the possibilities of marketing the Danubian animal products (which have now reached nearly the limit of production) an idea must be given of the development of this form of produce.

The *fluctuation in head* of the stock which is most important for production of meat and fat in the exporting countries is represented in Figures 1 to 7. It is apparent that the development has not been along absolutely parallel lines in the different countries. This is only natural since at the end of the war the countries followed very different policies as regards production and commerce. The diversity of the conditions of production also played an important rôle, as did the manner of applying agrarian reform. The resultant development is so apparent in the diagrams that comment is superfluous.

In regard to the importing countries the available figures are not sufficient to be shown in graphic form. The census figures of recent years must therefore serve our purpose. For Austria the figures from the 1930 census only are available, as there has been no other since 1923. Comparison of these figures shows an increase in all stock animals except sheep. Recent statistics (1931) for Czecho-

slovakia show since 1925 a slight fall in cattle and in sheep, but until 1930 an increase in pigs ; last year however there was a considerable reduction in head of pigs resulting from heavy slaughter.

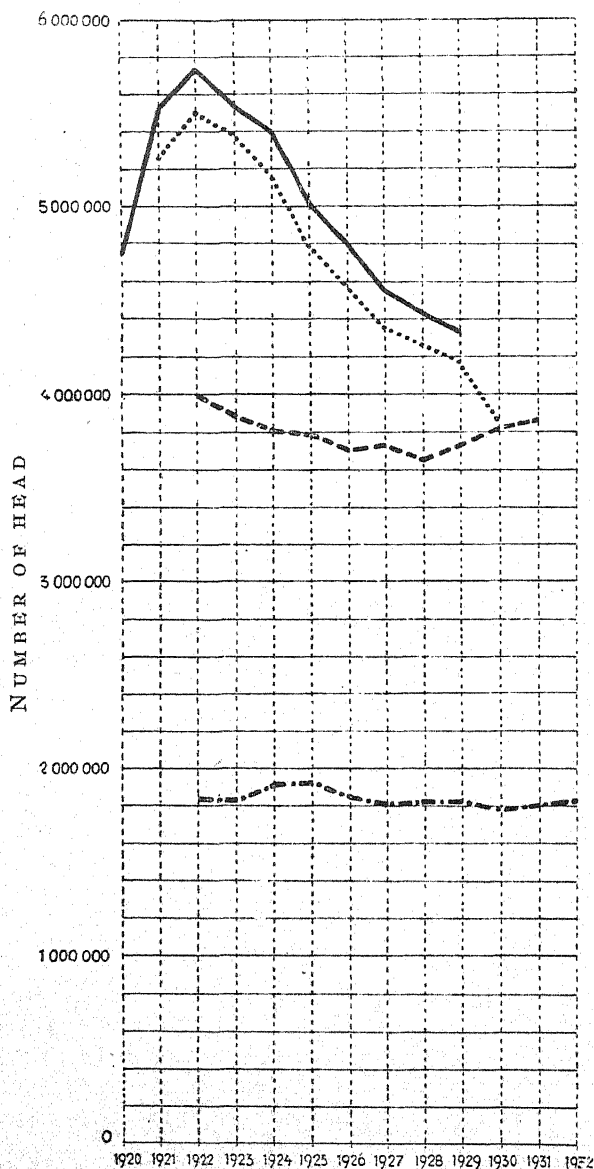


FIG. 1. — Cattle in the exporting countries from 1920 to 1932.

KEY :

- Rumania (total stock).
- Rumania (exclusive of towns).
- Yugoslavia (exclusive of towns).
- . - . - Hungary.

It is a recognised fact that the value of statistical data is limited if stock of different countries and different times are to be compared. This is particularly the case for the Danubian countries. These lands, as already explained,

FIG. 2. — Sheep in Rumania (exclusive of the towns) from 1921 to 1930.

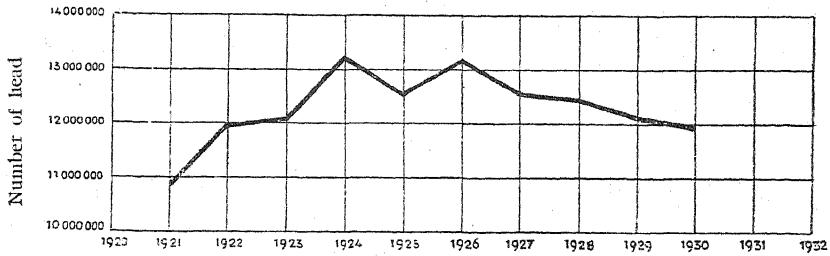


FIG. 3. — Sheep in Yugoslavia (exclusive of the towns) from 1922 to 1931.

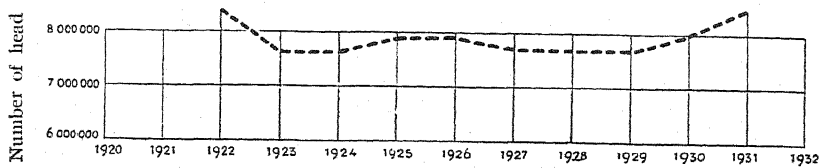


FIG. 4. — Sheep in Hungary from 1922 to 1931.

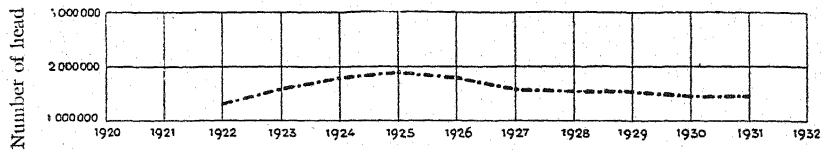


FIG. 5. — Swine in Rumania (exclusive of the towns) from 1921 to 1930.

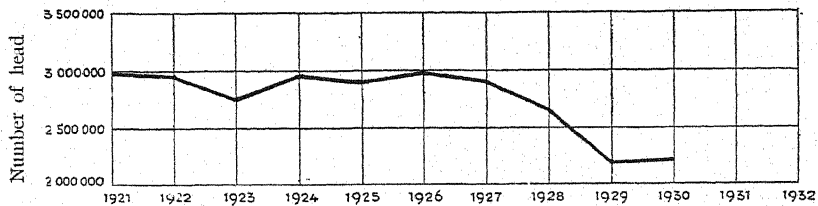


FIG. 6. — Swine in Yugoslavia (exclusive of the towns) from 1922 to 1931.

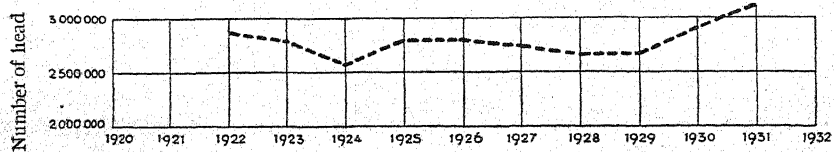


FIG. 7 — Swine in Hungary from 1922 to 1931

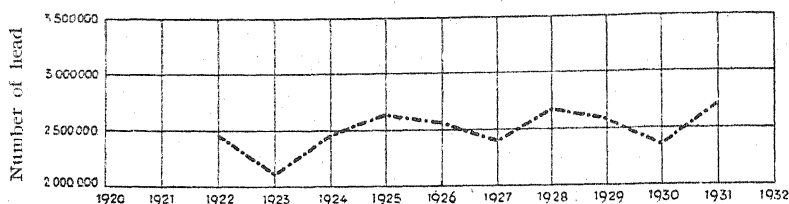
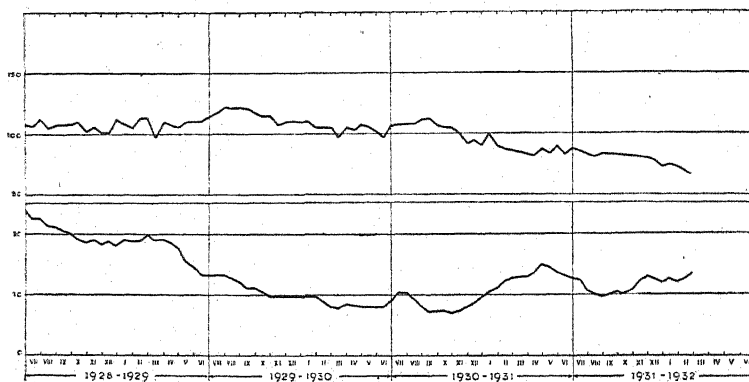


FIG. 8 — Relationship between prices for beef cattle (live weight) and prices of feed at Budapest (Hungary) from 1928-29 to 1931-32.



KEY:

Upper curve = Variations in the price of prime quality beef (per 100 kg. of live weight).

Lower curve = Variations in the price of a feedstuff (wheat bran; per 100 kg.).

comprise zones of production varying greatly in intensity and in kinds of stock. There are found there besides the improved breeds of the intensively farmed zones, primitive breeds raised in the poor conditions of the distant zones farmed on non-intensive lines.

At present means are not available for a uniform scientific comparison of these varied conditions such as that, for example, undertaken in the *International Cattle Atlas* in course of publication by this Institute.

A comparative study of this kind would be all the more valuable since the question of breeds influences not only quality but also quantity, by the rhythm of production which is fundamentally dependent on the varying rate of maturity of the animals. In spite of the interest and utility of a study of the composition of the stock as regards breeds, distribution of male and female, and species (cattle and sheep, cattle and pigs, etc.), this cannot be undertaken in these brief considerations.

Certain problems, however, closely bound up with the development of quality in the stock must be considered here. Even from this point of view the political changes have had consequences, because wide regions annexed to

the new States with different livestock organisation have been obliged to modify their previous systems and consequently also their stockbreeders aims.

Agrarian reform has also had a great influence on the products under consideration. It has entirely transformed the land tenure system in certain of the Danube countries, suppressing large estates and replacing them by large numbers of small lots. According to Mr. HOLLMANN, Professor of Agriculture at the Agricultural Accademy of Berlin, who has made a study of the effects of agrarian reform on agriculture, in countries where farming is not on the intensive system the large estate has played a very important part in producing high-grade stock by improving breeds by scientific methods. Suppression of the large estates has caused retrogression in quality in these regions and has obliged the State to act as a substitute for the one-time large farmers and to keep a control on the present smallholders by means of State organisations. The future will show how far this substitute is effective. On it depends the development or the stoppage of stock farming. Measures for promotion must necessarily be accompanied by suitable instruction, the importance of which becomes greater as the degree of education and customs of the farmers play an increasingly large part. Stock breeding cannot be suddenly undertaken or developed, like the main crops, without previous experience and without a certain degree of intelligence and education. This factor is of considerable importance at the present time. As has been shown above the exporting countries are obliged to seek new markets and these generally have different requirements from the old ones. It is not easy to convince breeders with little education of the necessity for taking into consideration the sometimes exaggerated requirements of the buyers.

In consequence of the disruption of the Austro-Hungarian kingdom the make-up of the herds, particularly of cattle, has undergone interesting modifications since the war. Formerly there was observable a definite division of the territory into regions of breeding and regions of utilisation of the animals. For example, most of the cattle bred in the mountains were marketed young for work in the grain-growing regions or for dairy purposes in the vicinity of the large towns. These animals when older were fattened, specially in the regions of agricultural industries where waste products could be utilised in this way. This indirectly favoured the spread of improved breeds which came mainly from the mountainous parts of Austria and were in part of Swiss origin. With the development of agriculture these breeds became still more widely spread. But with the disruption of the Monarchy this movement stopped.

To-day each country is obliged to produce all the types of animals in demand on the market. The effects of this tendency are apparent, particularly in the cattle raising industry of Austria. Before the war the country supplied mainly breeding stock and young animals for draught and dairy purposes, and imported fat stock for slaughter. Since the war there has been a tendency to reduce imports of fat stock by producing beef animals in the country, although up to the present Austria has produced only lean animals and the conditions for producing pasture and feeds are not very favourable. Recent measures taken by the Austrian Government in this matter have had disastrous con-

sequences for the exporting countries, which have practically lost their main market for cattle, only a small quota being allowed into Austria. The difficulties of the situation were increased for these countries because at about the same time (second half of 1931) other importing States took similar measures.

The pre-war situation in the Monarchy that has been briefly outlined was founded on natural conditions of feed supply. These naturally have remained the same but the new distribution of territory has changed the values.

Two main types of region are distinguishable. The *first* includes the regions producing large quantities of bulky fodder (roughage) which usually are not marketed and are of value only if there is livestock. These regions naturally must retain their stock farming which alone enables them to profit from their crops. They include, for example, the wide zones covered with pasture where the natural conditions do not allow of other crops or only of one crop such as potatoes, which cannot be marketed at a distance on account of their low market value and the high cost of transport, and must therefore be utilised where they are grown. The same applies to the waste products of agricultural industries. With their large quantities of fodder these districts are great producers of fat stock and in times of crisis it is very difficult to compete with them, particularly when prices tend to fall. Such of these regions as have a non-intensive system of agriculture are the main competitors because they are not able to reduce their stock as rapidly as the state of the market requires it. An interesting case in point is that of Poland. The present tariff system allows this country to enter, in the same conditions as the exporting Danubian countries, markets which were formerly exclusively supplied by the latter and are the most important markets in Eastern Europe. For example, an abundant crop of potatoes in Poland may exercise a decisive influence not only on the markets in question but also on the pig raising industry in the Danube Basin.

The conditions of the *second group* are entirely different because in these regions stock raising is based chiefly on concentrated feeds. Here the development of stock farming is a direct function of the ratio between the price of concentrates and the price per kilo of live weight. As soon as the price of feedstuffs reaches a level such that their transformation into animal products is no longer remunerative the feedstuffs are exported and stock farming is abandoned. This is particularly the case in the vast region with a dry continental climate where stock raising is based mainly on locally grown maize.

The effects of the grain crisis and the lowering of grain prices naturally favoured stock farming in the regions of the 2nd group and even in those of the 1st group which intensified their production by supplements of concentrated feeds. This phenomenon was short-lived however, as has been shown above in connexion with the exporting countries.

As a result of the measures of the importing countries restricting the markets, there were large supplies available within the exporting countries and prices fell; further, the bad harvest of 1931 by raising the prices of fodder and concentrates made it impossible to reduce production costs. This situation was further aggravated by the reduced purchasing power of the masses. Finally,

Exchange regulations in many cases prevented regions which were short of fodder from importing it in favourable conditions. All these factors resulted in a fall in the prices of stock while the price of feedstuffs increased

The fluctuation in the conditions of production will now be shown in more detail, demonstrating, that is, how they at first favoured stock raising during the period following immediately on the grain crisis and how this situation later became changed. Let us compare the fluctuation of the prices of fat stock with that of the prices of feeds as they appear on the important export market of Budapest (fig. 8). In this diagram are combined data making it possible to follow the fluctuations in price per kilo of live weight of prime quality beef; to show the simultaneous fluctuation in the price of feedstuffs wheat bran has been selected. The diagram clearly demonstrates that beef was profitable, the profits being greater as the distance between the two curves is greater. These figures will suffice to give an idea of the difficult situation in which beef production finds itself in these regions at the present time. It is true that in the other exporting countries the prices of fodder and feeds have not become as unfavourable to meat production as in Hungary. It is true that in Rumania and Yugoslavia, as a result of the more favourable conditions, fodder production is less difficult than in Hungary and, in consequence of the difference in the methods of feeding stock, the relation between the price of live animals and that of feeds is of less importance than in Hungary. It is evident however that these two countries have suffered like Hungary from the disastrous fall in the market prices of stock.

These explanations show that the deplorable situation does not result from increased production in the exporting countries. Although following the grain crisis the conditions of meat production did improve and there was in consequence an increase in production, this increase was immediately absorbed by exportation and so, as is apparent in figs 1 to 7, there was no appreciable increase in head of stock. The slight gain in 1931 was probably the result of difficulties of export.

All the factors influencing the total production cannot be enumerated here; we must limit ourselves to mentioning, without pretending to treat the subject exhaustively, certain of the purely technical factors such as the conditions and means of transport, the existence of modern slaughter houses and cold stores and of factories for canning meat, the organisation of the veterinary service, the frequency of disease, etc., all of which factors should be taken into account in calculating the exact limits of the capacity for production of the Danubian countries.

III. — TENDENCES AND PROSPECTS FOR FAT STOCK RAISING IN THE DANUBIAN COUNTRIES. — In studying stock farming tendencies in the Danubian countries it is thus necessary to distinguish those of the importing from those of the exporting countries, which differ profoundly. In the importing countries the Governments have successfully stimulated production so that to-day they are able to cover a much higher percentage of the home requirements in meat and fat. The question of how far the production will still further increase depends

not only on technical problems but also on political and economic developments ; in any case the production of these countries will regulate itself according to the demands of their home markets, both as regards quantity and quality.

The situation of the exporting countries is much more difficult. For them the question of increasing production and breeding does not arise for the moment and even if favourable trade conditions should persist the exporters will have to decide whether it is advisable to maintain breeding at the same level as in former years. As we have seen these countries have recently lost a large part of their trade outlets and are obliged at the moment to seek fresh markets. The results of their attempts are not yet conclusively apparent. These countries should at first keep a certain elasticity which will enable them to exploit the conjunctures of the moment and adapt themselves to the varying requirements of the different markets. In these countries therefore stock farming cannot follow definite lines as in the importing countries. It is necessary however to improve the quality and try to lower the costs of production. In view of the precarious position of breeders in these countries it is readily understandable that it is difficult for them to reach so complex and so varied ends, specially since they must keep up the herds at any price, not taking into account direct profits alone but also the indirect profits appertaining to agriculture as a whole.

The effects of the grain crisis show that fluctuations in external conditions have a slower and less profound influence on arable than on stock farming. In fact, in spite of the unfavourable conditions resulting from the grain crisis the acreage under grain crops has scarcely diminished. On the contrary for stock farming the consequences of a bad time are serious and generally lead to an immediate reduction in breeding and a fall in numbers and in quality, which not only means a diminution in income and in national revenue but causes also a realisation of capital among farmers by reducing their annual receipts to those obtained from their crops. Livestock being the only means of obtaining profit from a great quantity of produce and waste products which are not usually put on the market, a restriction in stock farming constitutes an economic injury. Moreover, the shortage of manure affects crop production and hence has a repercussion on agriculture as a whole.

* * *

From the preceding discussion it is abundantly clear that it is not easy to give an exact idea of the tendencies and prospects of the fat stock industry in the Danubian countries. The economic situation and the highly unstable commercial policy of the present time may from one day to the next create conditions highly favourable to one branch of production and ruin the possibilities of another. It will suffice to mention in this connexion the measures of commercial policy and veterinary legislation which often paralyse one branch of stock breeding in a country and encourage another. Hence it would appear that as regards stock farming in the Danubian countries, the lack of stability is one of the most seriously adverse factors preventing a normal development.

E. MOSKOVITS.

AGRICULTURAL INDUSTRIES

Miscellanea.

INDUSTRIES OF PLANT PRODUCTS

ACTIVATED CHARs AND DECOLORATION OF THE JUICES IN SUGAR MANUFACTURE. — A long report by ZALESKI, of the Central Laboratory of the Sugar Institute of Poland, discusses recent improvements introduced into the technique of decolorizing juices in the sugar factory by means of activated chars ("Carboraffin I", "Standard Norit", etc.), which can replace the more costly animal char with technical as well as economic advantage.

In both the mixed and combined processes the exhaustion of the char is carried to the maximum and the filtered juices are clear and brilliant.

The first parts of the filtrate can be used in the refinery for clearing, the juice being sufficiently concentrated and pure, whereas with animal char the juice is too dilute.

Technique of the mixed process. — A layer of cold activated char is laid on the filter. The juice to be bleached is previously mixed with char which has already been used and revived by decantation or regeneration. In this way the utilisation of the fresh char is carried further, because it is preserved from fouling by the layer of regenerated char which enters with the juice. Further, any inequalities in the layer are smoothed out and poor filtration and unequal decoloration are prevented.

Amongst recent improvements in the process may be mentioned:— (1) regulation of the pressure on the filters by a simple device which automatically regulates the pressure if there is an interruption in the arrival of the juice; (2) addition of regenerated char to the juice during concentration by filtering after evaporation. This gives the best decolorizing, facilitates boiling and gives a maximum utilisation of the char.

Acid chars are neutralised by small quantities of Na_2CO_3 and then treated with a current of SO_2 , as in the customary carbonatation and sulphitation.

Regeneration of used char is effected by 3 methods:— (1) decantation (washing); (2) chemical regeneration by washing with HCl (5-10 % of the weight of the char) and subsequent washing with water; (3) thermic regeneration, which is used in large refineries by treating the char in special closed furnaces at 200-300°.

Three processes are shown in diagrammatic form:— (1) with fresh char only; (2) with fresh char and washed char; (3) with fresh char and regenerated char — the process which has given the best results. The quantity of char used (Standard Norit or Carboraffin) in the sugar factory with the first process was from 0.1-0.2 % according to the weight of white sugar produced or refined. The second and third processes required 0.08 % of Norit and 0.06 % of Carboraffin in sugar production and 0.1 % of each in refining.

(*La Betterave*, Paris 1932, No. 557).

INDUSTRIAL REFRIGERATION OF WINES. — The following is a brief summary of the effects of refrigeration of wine:—

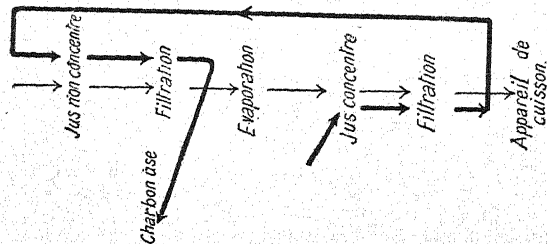
(1) *Stabilisation.* — The bitartrate and similar salts are precipitated by supersaturation by maintaining the wine at a temperature as near as possible to its freezing point, so as to prevent any precipitation or clouding caused by a further accidental cooling.

DECOLORIZING OF JUICES IN THE SUGAR FACTORY WITH FRESH CHARs BY DIFFERENT METHODS

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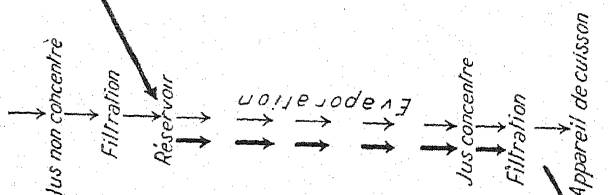
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1st method
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Scheme
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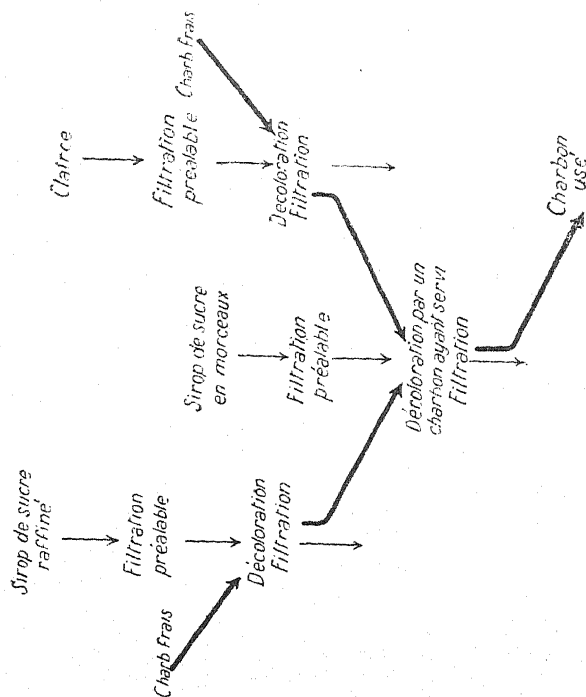
Jus non concentré = Non-concentrated juice.
Charbon usé = Used char.
Jus concentré = Concentrated juice.
Appareil de cuisson = Heating apparatus.
Sirop de sucre raffiné = Refined sugar syrup.

and method
—
Scheme
of operations
—



Jus non concentré = Non-concentrated juice.
Charbon usé = Used char.
Jus concentré = Concentrated juice.
Appareil de cuisson = Heating apparatus.
Sirop de sucre raffiné = Refined sugar syrup.

3rd method
—
Scheme
of operations
—



Filtration préalable = Preliminary filtration.
Charb. frais = Fresh char.
Sirop de sucre en morceaux = Sugar syrup.
Décoloration par un charbon ayant servi = Decoloration by used char.

(2) *Clarification.* — The general precipitation which takes place in the wine carries away all the superfluous elements found in suspension. Further, freezing produces coagulation of the pectic substances, followed by a slow deposit which precipitates the majority of the microorganisms present.

(3) *Development of the bouquet.* — The development of the bouquet is due to absorption of oxygen from the air, favoured by the low temperature, which causes also a *deferrisation* (transformation of ferrous salts into precipitable ferric salts) so as to give aged wines possessing the qualities demanded on the market.

The chief purpose of refrigeration being the precipitation of superfluous salts it might be thought that the best method would be to imitate nature and that wine cooled to a given temperature would not become turbid again if subjected to a second reduction of temperature. But this is not the case, for the solubility of the salts of wine depends on the speed of cooling.

A wine cooled to -5° slowly has not the same content in dissolved salts as when it is cooled rapidly to the same temperature. Consequently a wine cooled slowly, say to -6° , filtered, then warmed and re-cooled to -3° will give a further precipitation. A cooled wine immediately separates out a certain quantity of crystals, holding in suspension microscopic crystals for which the usual filters are inadequate.

To allow of the enlarging of the crystals by accumulation and to help coagulation of the substances in excess the wine must be allowed to stand absolutely without movement; it must also be kept at a constant temperature and as low as possible, so as to avoid re-solution and the resulting rise of temperature; this is attained by the use of isothermic vats with a compensating device.

Wine is at its maximum density at 0° , therefore in an isothermic vat in which the temperature is maintained at between 4° and 5° below zero, the coldest wine is above and the warmest in the lower part of the vat. Thus it is necessary to cool from below. This fact has resulted in a patent (Tottereau) concerning the use of a cold plate at the bottom of isothermic vats, which has constituted a notable progress in the technique of the refrigeration of wine.

It seems that partial congelation of the wine must not be made use of. In fact the ice crystals float and accumulate in the upper part of the isothermic vat; if they melt in consequence of heat entering from outside there will result a fall of temperature at the top, which is opposed to the maintenance of a uniform temperature throughout the whole mass.

Thus it is necessary to cool wine in the immediate neighbourhood of the freezing point but without exceeding it, so as to avoid dissociation of the delicate liquid.

Irregularities in direct expansion do not allow of refrigeration with complete accuracy, and the presence of ice on the walls associated with the special nature of the surfaces of exchange reduces their power of transmission. A wide difference is thus required between the temperature of expansion and the temperature desired for the cooled wine. In practice it is found necessary to expand at -15° or -16° to cool the wine to -5° , though at the "Grandes Caves Phocéennes" at Marseilles expansion is now effected at -12° or -13° to obtain the same result, because of the use of an intermediary non-freezing liquid (Tottereau process).

This process offers the further advantages of uniform refrigeration without freezing, a higher yield and automatic regulation by means of the non-freezing liquid.

The wine thus obtained is perfectly stable, clear and, owing to the lightening produced by the reduced temperature and oxidation, it acquires a certain ageing which is appreciable to the eye and palate.

The most profound change in the wine, as shown by numbers of analyses, is a reduction in the cream of tartar content (about 0.8 ‰ for the red wines and about 0.3 ‰ for the white wines analysed) and the wine is perfectly fit to undergo its second phase of ageing which takes place in the bottle.

(*Revue Général du Froid*, Paris, May 1932).

PETROL AND DIESEL OIL FROM CRACKING OF PALM OIL. — A study of this question carried out by J. C. MORREL, G. EGLOFF and W. F. FARAGHER has shown the possibility of utilising palm oil as a source of petrol in countries where the production of the raw material is under direct agricultural control.

The palm oils used were that from Sumatra (clear orange, free fatty acids 6 %) and that from the Niger (reddish brown, free fatty acids 50 %). The oils were cracked at 426° with a pressure of 136 lbs, giving the cracked distillate, gas and coke. The same was effected with Sumatra oil at a pressure of 75 lbs per sq. in. and with Niger oil at a pressure of 50 lbs.

Yield. — Cracking Sumatra oil gave a yield of 62 % of motor spirit and 11.6 % of Diesel oil. The Niger oil gave 71 % motor spirit and 9.5 % Diesel oil. The cracked distillates of palm oil after refining give colourless spirits, non-corrosive and containing no detectable sulphur and are thus suitable as fuel for internal combustion engines. The hydrocarbons resulting from pyrolysis of palm oil belong to 4 main groups:—olefins, aromatics, naphthenes and paraffins.

(*Les Matières Grasses, le Pétrole et ses dérivés*, Paris 1932, No. 290).

INDUSTRIES OF ANIMAL PRODUCTS

ON THE RELATION BETWEEN THE CONTENT IN IMPURITIES AND THE CONTENT IN BACTERIA OF MILK. — Studies carried out at the Federal Establishment of the Dairy Industry and Bacteriology of the Liebefeld (Berne) on the relation between the content in impurities and in bacteria of milk, have shown that impurities from faecal matter (fresh) have a less unfavourable influence on the bacterial content and on the keeping capacity of milk than is generally supposed. It has been found that a high bacterial content and consequent poor keeping capacity are due primarily to the milking machines and transport cans and to inadequate cooling, and only secondly to lack of cleanliness in milking. The most scrupulous cleanliness in all stages of handling milk, including milking, are however recommended.

(J. BAUMANN, *Schweizerische Milchzeitung*, Nr. 72, 1932).

BUTTER MAKING WITH WHOLE MILK. — Experiments have been carried out at the Physics Institute of the "Preussische Versuchs- u. Forschungsanstalt für Milchwirtschaft in Kiel" by OLDENBURG and REINHARD to study the influence of the butter-making process, temperature during the process and the degree of acidity of the whole milk on the fat content of the buttermilk and on the quality of the butter. The following results were reached:—(1) As the best process for making butter from whole milk it is recommended to use whole milk having an acid content of about 25 S.-H., cooled to 12° and left thus for acidification to take place. It is not important for whole milk to be cooled to very low temperature, or by cold water, after pasteurisation. This process gives a minimum fat content in the buttermilk and butter of as good quality as possible. (2) Whole milk should be acidified normally to 34 S.-H. Over-acidity may slightly reduce the fat content of the buttermilk but the quality of the butter is unaffected. Less than normal acidity is not to be recommended. (3) The temperature for butter-making from whole milk is slightly higher than for cream. It varies

also with the consistency of the fat ; in summer it is about 14-16° C and in winter about 18° C. The inconvenience of a too-prolonged process is less great for whole milk than for cream. (4) Whole milk always gives a good quality butter. (5) If the milk to be used contains only 1 % of butter fat butter-making is not advisable, but above 2 % it is always possible to obtain butter. The temperature must be kept lower the higher the fat content of the milk to give a satisfactory yield. When suitable temperatures are maintained no marked differences are observable in the fat content of the buttermilk whether whole milk or cream is used. (6) With whole milk there is a lower percentage of fat in the buttermilk because of the greater bulk of buttermilk.

Whole milk should thus be used for butter-making only in the following cases:— (1) The quantity of milk and cream available is scarcely sufficient to supply the required quantity of buttermilk ; (2) the buttermilk obtained from churned skim milk ("geschlagene Buttermilch") is not marketable ; (3) the buttermilk from whole milk fetches a price which makes the inevitable loss of fat negligible.

(*Milchwirtschaftliche Zeitung*, Wien 1932, Nr. 17^a, p. 533).

MATURATION OF GORGONZOLA CHEESE. — E. SAVINI has investigated a method of shortening the time required for maturing Gorgonzola cheese by adding cultures of *Penicillium* prepared by the Serotherapeutic Institute of Milan on the CARBONE process. A gain of about a month has been successfully achieved without any adverse effect on the cheese. The method has the additional advantage that the green coloration, which is sometimes defective with the usual process, never fails to appear.

(*Latte e Latticini*, Roma 1932, n. 3).

E. G. and G. S.

BOOK NOTICES *.

Fur Farming.

MALINER F., *Pelztierkrankheiten*, 342 p., Riga 1930, Verlag der Buchhandlung G. Löffler.

[The present volume is the first of a series which is to form an Encyclopaedia of the fur farming industry. This volume, which deals with the diseases of fur yielding animals, presages well for the success of the whole. The diseases are described under three headings: (1) organic diseases, (2) contagious diseases, (3) parasitic diseases. A fourth chapter deals with aspects of hygiene in fur farming. A supplement at the end of the volume contains an interesting account of vitamins and deficiency diseases in relation to feeding on the fur farm].

S. T.

Farm Buildings.

D. N. MCHARDY, *Modern Farm Buildings*, London 1932, Crosby Lockwood and Son, 227 p., 84 figs.

[The book, as a whole, is designed not only for the landowner or farmer who wishes to improve or replace his buildings, and the builder who may have the carrying out of the contract, but also for students sitting for diploma and degree examinations in which farm building construction is part of the syllabus. In the first part the principles of

* Under this heading are included short synopses of books received for review.

construction are described in non-technical language in order to serve as a guide to those who wish to carry out simpler types of work with the aid of their own employees. Secondly a number of chapters is devoted to the principles of design applicable to the various classes of building. Contents : I. Plan Drawing - II. Concrete - III. Concrete Construction - IV. Brickwork. - V. Roofing Materials - VI. Carpentry and Joinery - VII. Drainage - VIII. Water Supply - IX. Lighting - X. Business Considerations - XI. Cowsheds - XII. Dairy Buildings - XIII. Housing Dry Cattle - XIV. Stables, Cart and Implement Sheds - XV. Construction of Piggeries - XVI. Food Supplies and Crop Storage - XVII. Miscellaneous Structures - XVIII. Modernising Old Buildings - XIX. Repairs and Upkeep - XX. Form of Contract Agreement].

H. J. H.

Farm Machines.

DENCKER C. H. und N. L. WALLEM. *Vorbedingungen des Maschineneinsatzes auf amerikanischen und deutschen Betrieben*. Berlin, Paul Parey, 1932, Sonderabdruck aus *Landwirtschaftliche Jahrbücher*, 75, Band, Heft 6.

[This work on the use of machines on American and German farms explains the reason for the different lines along which mechanisation has in many cases developed in the two countries and shows how far American machines and methods can be successfully adapted to Central European conditions].

H. J. H.

JASNY N., *Der Schlepper in der Landwirtschaft, seine Wirtschaftlichkeit und weltwirtschaftliche Bedeutung*, 155 p., Berlin, Paul Parey, 1932. Sonderheft der *Berichte über Landwirtschaft*.

[The fundamental change brought into arable farming by mechanisation in general and more particularly by machine traction is not yet fully recognised and it is not yet known exactly how far the progress in technique can be rationally utilised in diverse natural and economic conditions, nor what modifications should be introduced in farm management and the effects of such changes on the general world economy and on the competition between countries.

This work on *The Tractor in Agriculture* is a contribution to the study of these problems. It is shown that it is of fundamental importance for the economic practicability of the tractor that the use of traction, whether mechanical or animal, shall be intensive. The more intensive the work in a given time the more will be the economic advantage of the tractor over the horse. Wages are also an influential factor in the economics of the tractor, though more indirectly by affecting crop rotation and the intensive utilisation of the tractor than directly by influencing costs of traction. The two points of view are critically examined and part of the volume is devoted to the spreading of the use of tractors and their economic practicability in different countries].

H. J. H.

FORESTRY

Grazing as a Problem in Forestry.

The problem of the limits within which grazing can be allowed without risk to the proper conservation of the forests is very old and up to the present it has rarely been found possible to solve it on purely technical lines. Considerations of a general economic and also social order have almost universally stood in the way of any consistent policy.

It is to be noted further that the degree of seriousness of the effects of grazing vary in accordance with the climate of the various countries.

Thus it is in countries with temperate or hot climates that the risks of grazing are most marked on account of the special difficulties inherent in forest regeneration, while it is precisely in such countries that the constant extension of the cultivation of important crops on the fertile plain lands causes pasturing to be increasingly diverted to the mountains and to higher ground where the forests are to be found.

In countries with a cold or damp climate, pasturing seems to have been developed as regards the use of plain or mountain areas with a better sense of proportion. Where the conditions for forest regeneration are most satisfactory and just consideration is given to the chief factors, including nature of the stock, age of stands, duration of the period of grazing on the same area and, more particularly, the careful assessment of the grazing capacity of each unit of area, a genuine effort has been made to reconcile the interests both of the grazing and of the forest industries. In such cases stock-raising requirements seem to be mainly supplied by local resources apart from the forests and it is possible to make any particular adjustments that may be necessary.

It is a quite different matter in regions where pasturing from its beginning is made to depend almost entirely upon the forests. In such conditions the constant increase of grazing might well bring about a complete destruction of the forests of the district and at the same time economic disaster for the inhabitants.

These phenomena have characterised all stages of history and the regeneration of forest areas which have suffered from excessive grazing has in the past encountered all kinds of difficulties as it does still to-day. At the same time it appears that any action on the part of experts and of public authorities frequently meets with local resistance in various forms and often springing from ancient usages.

A careful analysis of the different kinds of mischief caused by forest grazing would in most cases fully justify the strictest limitation of the extent to which pasturage can be admitted at all.

Observers are as a rule particularly concerned with the direct damage caused by grazing, although recently there has been a growing tendency to pay attention to its indirect results which constitute the real danger.

Indirect damage begins with the forest soil itself. It mainly originated in the trampling of the animals, the effects being by no means always in proportion to their size or weight, each kind behaving in its own way as it passes from one place to another. The number of wanderings during the same period and over any given area varies with the degree of energy of the particular kind of animal and the footmarks of the different species affect differently even the same forest surface according to the lightness or the reverse of the tread in each case.

The frequent passage of animals over the surface has effects which vary according to the degree of the gradient. The geological character and the mineral basis of soils, through their influence on the soil-making qualities of

the surface layers, are also of importance and in certain cases make it absolutely necessary to prohibit grazing altogether.

The goat for instance is a voracious feeder but does not stay for any long time in any one place, even if it provides abundance of food. A goat's hoof presses heavily on the surface in which it leaves deep holes; at the same time the goat moves about very quickly and constantly returns to the same spot. Thus it comes about that goat trampling nearly always leads to serious results particularly as a goat is able to stand upright on the most difficult ground.

On the other hand the ways of sheep are quite different. They seem to prefer to browse for a long time in the same place and as a rule the mischief they cause to the surface appears to be less serious than that brought about by goats.

Cattle require a large amount of fodder every day and therefore they are as a rule obliged to look for somewhat extensive pasture areas. The results of cattle grazing are ordinarily not very serious for forest soils, except where the ground slopes steeply.

A. H. UNWIN (Great Britain) has described the results of goat trampling in its relation to the mineralogical character and the stage of the evolution of the soil of wooded surfaces which are grazed by goats. He calls attention to the fact that, where the slope is strongly marked, the soil layer is usually thin and can only be properly maintained through a quite regular, gradual and slow drainage of the rain water. Goat grazing on such soils affects the soil layers immediately below the loose surface and close to the bedrock, and in these circumstances there is no possibility of any resilient reaction at the lower level. Thus the disturbance of the surface will have effects of a more or less immediate character which it will be a very difficult matter to remedy. Sooner or later the soil will suffer from the consequences of accelerated erosion, the first of which will be a diminution of the general power of resistance of the stands to external risks and the process of natural regeneration will be to an increasing degree impeded. Thus should a forest fire occur the general conditions for the conservation of the forest growth on the grazed-over areas will be rendered particularly unfavourable.

R. B. MILLER (United States) has carried out grazing experiments over a defined area of forest land. For this purpose he took two acres of loblolly pine (*Pinus Taeda* L.) forest in full vitality and the result of natural sowing, which he divided into four lots. The surface of the first was burnt over and then browsed for five years by small stock. The second was suitably browsed but not burnt over. The third was burnt over lightly each year but not browsed. The remaining parcel was used as a control and neither burnt over nor browsed. Care was exercised to select a place where growth was uniform and abundant, and where regularly spaced mother-trees gave adequate shelter. The results of the trials were as follows: all reproduction growth was stopped on the first lot where two loblolly seedlings only remained, having escaped from the effects of browsing in consequence of their rapid growth; on the second plot most of the seedlings had disappeared and those which remained were seriously damaged; on the third plot the annual burnings had no direct

effect on reproduction, though upward growth of the young trees was retarded, the yellow pines (*Pinus Echinata* Mill.) alone shewing themselves unable to withstand the effects of the fire. The fourth lot showed no signs of damage and light burnings made after the fifth year of the experiment, which was the seventh after the original sowing, were also innocuous even to the yellow pines, of which a small number were intermingled with the predominant variety.

N. G. PRING, a British Forest Officer in the Punjab has made certain experiments in connection with the damage caused by sheep turned out to pasture in the forests. After reviewing the results of allowing sheep to browse on young cedar and fir, he was in a position to say that the damage caused to the trees was almost imperceptible. On one reproduction plot of 2 years old fir saplings no harm at all had been experienced after two consecutive years of pasturing, while at the same time the effects of trampling were also hardly noticeable on account of the abundant soil covering with grass and scrub (*Spiraea Lindleyana*, *Salvia glutinosa*). He however also states that, even if sheep grazing is not prejudicial as regards conifers, it is harmful for broad-leaved varieties so that the first named may be regarded as protected at the expense of the second. At the same time in the conditions prevailing in many parts of the Punjab, leave to graze sheep at times when normal pasturing is difficult is a great boon to the inhabitants of the wooded areas, and it might be possible through a regular system of sheep grazing considerably to diminish fire risks through the establishment of fire lines.

C. G. TREVOR, himself also a member of the Indian Forest Service, is not entirely in agreement with these views and is of opinion that a *chir* pine (*Pinus longifolia*) district does not supply good winter grazing for sheep, which prefer open pastures with abundant fine grass. If they are introduced into forest lands, when driven by hunger, they will browse shrubs in the same way as goats and the kind of grass which is useful for cattle is quite unsuitable for flocks. He feels too that as regards the risks of forest grazing, it is a great mistake to be over dogmatic.

In certain cases grazing may inhibit reproduction altogether, in others it does no harm and natural regeneration proceeds normally. In all cases the amount of grazing that can be borne by the unit of forest area must be carefully considered. The whole question is one of degree and, if grazing is practised to excess, even the best upland and mountain pastures may be ruined. In British India, this fact is confirmed by the plot experiments made by the Forest Research Institute under the direction of Professor TROOP and the writer here quoted.

Apart from the opinions to which reference has been made above which are the result of recent experiments and observations, mention may be made of a historic case of a general character described by M. BÉKY of Hungary. After stating that on the cultivated plain of Hungary there appears to be always an insufficiency of pasturage, he calls particular attention to the fact that in order to remedy this state of affairs, recourse has been had to seasonal pasturing on the cultivated area during the following period and that thereby the general fertility of the lands grazed has been seriously prejudiced. According to M. BÉKY the results on the soil of trampling by herds and flocks for even so short

a period as a month can only be made good by a complete repose for at least three years. Trampling on the afforested lands is even more serious as it cannot be remedied by ploughing or manurings. As a rule the reduction of forest growth through the effects of grazing and the consequent retarding or deterioration of reproduction represent a financial loss which is higher than the returns obtained by the stock farmers.

During the first half of the 19th century at the time of the abolition of feudal rights, a division of the land was made in favour of the class formerly liable to forced labour (*la corvée*), when it was arranged that each parcel of fertile agricultural land should have a corresponding area of less valuable land for pasture and of poor land for forestry, the maintenance of the forests on the last named areas being made compulsory. In the course of time excessive grazing almost entirely ruined the pasture lands while the lower quality soils, set apart for forestry, gradually became enriched. There is to-day a movement to establish forest on the worn out pastures and facilities for this purpose are being sought, but it seems unlikely that the support of the authorities will be forthcoming owing to the expense involved and the dubious prospects of success.

State intervention, with the object of the prevention of damage by excessive grazing, is generally found to date back to quite early times but it has rarely given completely satisfactory results. Inasmuch as the facilities for grazing on forest lands must necessarily be on a small scale and kept within fixed limits, it was practically inevitable that there should be great difficulty in maintaining consistent management schemes because of the need for allowing freedom for progressive local development in stock breeding, either on account of the growth of the population or of other economic factors. Hence in most cases the principle of using forest lands regularly in connection with stock breeding is in practice very dangerous.

At the present time there is a distinct tendency towards a more accurate determination of certain general rules. Grazing is now increasingly being prohibited in national and protection forests; at the same time in most countries the use of forests belonging to institutions or to private individuals is being properly regulated with special regard to the maintenance of conditions favourable to sound forest regeneration. Efforts are also being made to increase the fertility and capacity of the pasture lands already in use apart from forest lands by improvements in methods of cultivation and in actual grazing technique, so as to make up to the cattle breeders for the disturbance caused by the wide scale application of the systematic regulation of grazing facilities.

It is generally recognised that goat grazing in forests is fraught with such disastrous consequences as to make it desirable to oppose as strongly as possible any further increase of the practice. It has become increasingly clear that economically goat breeding gives negative results, while at the same time in recent years the increase in their numbers in all parts of the world is beginning to assume alarming proportions.

Prof. AGOSTINI (Italy), after examining a wide range of documents, has been able to construct statistics for the increase of the number of goats in most of the inhabited areas of the world. His investigations shew that, on the 100

millions of square kilometres for which his information was available, there were 177 millions of goats and 600 millions of sheep. During the last 20 years about half the world showed a general increase which may be estimated to amount to 13.3 % for goats and 8.8 % for sheep. In his opinion, if figures could be obtained for the world as a whole, the increase, in relation to the growth of population, would be much higher for goats than for sheep.

In the matter of the numbers of goats per square kilometre in the different continents, it may be stated that Asia heads the list with 6.8; then follows Europe (excluding the Europe-in-Asia area of the U. S. S. R. and Turkey) with 4.5; the corresponding figure for Africa is 2.2, for South America 0.8, for North and Central America 0.5, while for Oceania the figure is almost inappreciable, being less than 0.1.

The percentage of these variations at the end of the period considered and according to continents is the following: Europe + 19.4 % — Asia + 19.6 % — Africa + 9.2 % — America (North and Central) + 79.2 % — South America — 24.8 % — Oceania — 25.8 %. In Europe the increase is most marked in the U. S. S. R., followed by a group containing Germany, Greece, Italy and Spain while the increases in Bulgaria, Czechoslovakia, France, Norway, Portugal and Yugoslavia are less important. In the other continents the chief variations are to be found in the following countries in order of importance: as regards increases, British India, Mexico and Morocco; as regards diminutions, Brazil, the Union of South Africa and the Lesser Antilles.

No precise information as to the causes of these variations is available, but in general it may be considered that they are closely connected with a certain weakening of control very generally manifested to a greater or less degree during the war as also to the high prices obtainable for certain of the products of stock breeding.

As regards remedial policies, one cardinal point must be constantly borne in mind, namely that the basic needs of the inhabitants of grazing areas must be safeguarded though every care must be taken to avoid anti-economic methods.

In France the principles that find favour may be thus summarised. Grazing in the forest areas should be regarded as permissible as a benefit for the inhabitants, but it cannot be allowed that beneficiaries of this order should make a business out of such grazing. The inhabitants should be considered simply as having a usufruct in forest products and no exception to this rule should be allowed, since if they were perfectly free they might thereby gain certain temporary advantages at the expense of the general well-being and of a just balance in the economic life of the locality.

In Italy the recent alarming development of goat breeding is absolutely contrary to the pressing need for the protection of mountain soils against erosion. In practice any further development of goat grazing in the forests or on the areas under protective bush growths would nullify the special efforts that have been made to protect the mountain soils, whether by improving the quality of the trees or by regeneration through replanting. The improvement of the mountain uplands, which is generously aided by the State, tends to make good the disturbance in pasturing work which is likely to arise when the forests are relieved of

a very risky easement. A special tax is payable on goats grazed on areas where such grazing has been duly authorised.

In Austria, Germany and Switzerland, countries in which climatic conditions make it generally possible to carry on stock raising outside the forest areas, the difficulties encountered elsewhere are not seriously felt and forest grazing is well controlled. In these countries the forest officers' policy, which has the support of public opinion, is favourable to the exclusion of human beings and animals from the forests. Quite exceptionally permission is given to graze goats, on a strictly limited scale and at certain seasons, in old oak and beech forests.

In Rumania the time does not seem to be as yet ripe for any radical policy of an industrialised forestry system properly freed from grazing servitudes. The practice of burning afforested or bush lands in order to increase the grazing area still persists. On the other hand the grazing of sheep and goats in the State Forests is strictly prohibited.

The injurious results of forest grazing are still very obvious and wide spread in Greece, where however the forestry service and the more intelligent public are definitely in favour of the reconstitution and preservation of the forests on the ground that they are a more important economic factor than grazing. Unfortunately however the prevailing conditions of economic life in the mountain areas make any wide application of the general principle extremely difficult.

Forest grazing is in the United States considered as an exceptional means of aiding the stock breeding industry to overcome temporary difficulties. Studies of each type of forest have been made with the object of determining its capacity to tolerate grazing at different ages, and the National Forests are carefully protected. In the States forest fires are more feared than the results of grazing but, thanks to the methods adopted for determining the degree to which different types of forest growths can tolerate grazing, it is always possible to regulate grazing restrictions as regards areas that have been burnt over. In this country there is a clear tendency, in dealing with the problems of the protection of the forest against external risks, to rely after adequate experimental work, on scientific principles duly tested in practice before they are given any general application.

In countries with dry climates, where the type of vegetation gives the soil poor protection against drought, it is generally believed that grazing in the forests should be absolutely forbidden. The experience of a number of Dominions and Colonies shows however that the regulation of free pasturing is not a practical possibility and hence, where conditions are favourable, the establishment of definite pasture lands outside the forests is recommended as it is only by such indirect methods that any solution of the problem can be found. In British India, Algeria, Macedonia and Cyprus a fair amount of progress has been made by organising grazing facilities as far as possible outside the forests.

RIBBENTROP, of the Indian Forest Service, states that British Forest Officers in India have to encounter difficulties far more serious than their colleagues in Europe. From time immemorial the natives have been accustomed to graze their cattle, sheep and even goats wherever they pleased on all waste lands and forests. Efforts were made in the first instance gradually to effect a change in these habits

so as to bring about an accommodation between the acknowledged needs of the native population and the no less urgent call to protect the forest areas, as it is in the best interest of the State to utilise its Forest resources to the utmost of their capacity. There can be no justification for leaving the Forest to the mercy of forms of exploitation originating in local customs, which cannot in the long run tend to the betterment of the standard of living of the population. On the other hand special care must be taken to secure the regeneration and restoration of the forest areas that have suffered severely from continuous and excessive grazing. Stock raising can be successfully developed without any undue interference with the forests.

From the above considerations it may be gathered that the most practical method of checking the further spread of forest grazing lies in the prevention of the permanent use of the woods as auxiliary pasturage, which is better provided by the soils naturally adapted to the purpose. Where the development of stock raising is of special importance, it is the wiser policy to sacrifice certain wooded areas rather than to have recourse to any hazardous form of compromise. Hence the principles that have been enunciated are by no means intended to impose checks on the stock breeding industry, which is likely to find its best chances of success in the careful choice of types of stock specially adapted to local conditions and in the cultivation methods required for the maintenance or for the increase of the yield capacity of lands solely given over to stock raising.

In a large number of countries the serious consequences of the grazing that has taken place in the past, which now make it necessary to reconstitute the forests affected, calls for immediate attention. Hence it is necessary to bring the public to realise that, as forest protection is a duty incumbent on all States, the authorities should be able to rely on their assistance to this end, instead of remaining content with maintaining practices that are not really advantageous in the long run and are far from being in accord with economic principles as understood at the present time.

Any system that makes for delay in restoring the forests, first damaged by grazing and later by fires and erosion, tends to reduce them to a condition of degeneration that may well become irremediable and fatal.

S. CABIANCA.

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MONTHLY BULLETIN

OF

AGRICULTURAL SCIENCE AND PRACTICE

GENERAL AGRONOMY AND CROPS OF TEMPERATE REGIONS

The Organisation of Experimental Tobacco Growing in Spain.

The Tobacco Culture Service in Spain is under the direction of M. Horacio TORRES DE LA SERNA, to whom we are indebted for the following information regarding the organisation and development of this important Service.

The Service comprises the following organisations:—

(1) The Administrative Centre, completed by the Research, Technical, Statistical and other Sections, with its headquarters at Madrid.

(2) The Services of Technical Inspection which exist in each of the following zones: Northern Spain, Caceres, Seville, Cordoba-Malaga, Grenada, Valencia-Murcia and Catalonia-Balearic Islands; with headquarters at Valladolid, Plasencia, Seville, Cordoba, Grenada, Valencia and Barcelona.

(3) Six experimental plantations under the Services of Inspection, situated respectively at Torrelavega (Santander), Naval-moral de la Mata (Caceres), Seville, Grenada, Puebla de Farnals (Valencia) and Tortosa (Tarragona).

(4) Three fermentation centres situated at Malaga, Grenada and Naval-moral de la Mata (Caceres).

(5) Demonstration fields in a number of villages in various regions.

The Service was established in 1919, with an organisation similar to the present one, but was revised and adapted to national requirements by the Law of 26 July 1929.

The annual budget is about two million *pesetas*, the funds coming from the tobacco duties.

Each experimental field has an area of about two hectares.

The personnel engaged in the Service includes:—

(1) 16 agricultural graduates in charge of the administration of the Service, of the research section and laboratories, of the technical and statistical sections, of the district inspection services and of the fermentation centres;

(2) 5 assistants belonging to the agronomic Service: one attached to the general Secretariat and the others to the experimental fields;

(3) 24 keepers who for the most part are agricultural experts; these are divided among the regions to give agricultural instruction, inspect the crops, levy the taxes on tobacco plants and check contraband traffic.

There are also foremen and labourers. All this personnel is permanent.

All the Services under the Administration are provided with modern equipment. In each fermentation centre there is a complete plant for curing and fermenting tobacco of the «Re-drying» type belonging to the Proctar system which is widely used in North America.

The present plan of work is extensive and the Service is at the moment very active. All the problems of tobacco cultivation are under study and a scheme of experiments has been planned.

The questions of technique with which they are concerned are to improve and select varieties and to adopt those best suited to a given zone ; to classify the soils that are most suited to tobacco growing and so to obtain a chart of the tobacco soils of Spain ; to decide on the best time for picking and to give advice on cultivation ; to diffuse the best cultural practices (fertilisers, tillage, irrigation, etc.) ; to effect cross-pollination to obtain plants corresponding to given conditions ; to construct, and promote the use of, curing plant adapted for the first stages of the treatment of tobacco.

On the experimental fields the activities are as follows :—

(1) Selection of seed for the cultivation of mother-plants with regard to size, colour and density, which must correspond as exactly as possible with those of the varieties studied ;

(2) Treatments of seed for activating germination, for disinfection and protection ;

(3) Selection and preparation of the ground for seed production ;

(4) Selection of the plants that are most vigorous and true to type ;

(5) Construction of shelters, props and other means of artificial protection to prevent malformation of plants and falling of the flowering stems ;

(6) Bagging and otherwise covering flowers and fruits when there are plants of other varieties in the vicinity, to prevent possible hybridisation ;

(7) Removal of flowers not conforming with the varietal characteristics ;

(8) Picking, natural and artificial curing and cleaning ;

(9) Determination of germinating capacity at different degrees of maturity and at different seasons ;

(10) Study of cultural practices, irrigation, topping, trials of complete and other fertilisers, green manures, etc. ;

(11) Experiments in protection from diseases and pests, trying, for instance, sowing in paper pots or cartons in accordance with the Italian method of control of the « rosquilla ».

Certain special investigations are also being carried on, namely, a study of the influence of solar rays from different parts of the spectrum on acceleration of germination ; artificial heating of seed beds or covering with powdered tobacco ; tobacco growing under shade of sunflowers, hops and olives ; tobacco growing under muslin ; sowing directly in the field ; study of new hybrids, *Havanensis* × *Purpurea*, etc.

The Research Section with its laboratories is divided into 3 branches :—

(A) Agronomy, Phytopathology and Genetics.

(B) Analysis and Microbiology.

(C) Laboratories.

This section is intended more particularly for the study of :—

(a) Regional characteristics : soil, climate, etc. ;

(b) Influence of fertilisers on the properties of the tobacco (mainly concerned with nitrogenous and potash fertilisers) ;

(c) Tobacco diseases, their prevention and control ;

(d) Biometric study of the varieties most acclimatised to the country and selection of home-grown seed to obtain pure lines and lines possessing standard characteristics ;

(e) Improvement of the varieties most rich in nicotine for industrial extraction of the alkaloid ;

(f) Artificial hybridisation to produce new varieties with given characteristics ;

(g) Physical analysis of tobacco leaf (dimensions, thickness, density, separation and angle of the veins, hygroscopicity, combustibility, elasticity) ;

(h) Chemical analysis (content in nicotine, potash and nitrates, pH of the juice, ash, indices of saponification and iodine, volatile essences, etc.) ; study and isolation of the micro-organisms dominant during fermentation of tobacco ;

(i) Selection of ferments ;

(j) Study of the action of the enzymes during fermentation ;

(k) Abnormal and forced fermentation ;

(l) Germination capacity, disinfection and micrographic study of seed.

The Technical and Statistical Section suggests the limitation or extension of the areas under tobacco, studies the technical problems indicated by the Administration, establishes statistics of all sorts, fixes the net price of a kilo of fermented tobacco, etc.

In the new Centre at Grenada studies and experiments are carried out to obtain satisfactory fermentation with a recently installed machine.

The results obtained are brought to the knowledge of growers by the following means :—

(1) Lectures by the Inspectors of each zone in the tobacco stores of the villages.

(2) Frequent periodical visits of the keepers to *each grower*.

(3) Visits of growers to the experimental and demonstration fields.

(4) Lectures by the technical staff of the Administration, using for this purpose motor vans fitted with the necessary equipment to demonstrate the use of fertilisers and treatments for the control of pests and diseases. The lectures are illustrated by cinematograph films.

The Service also publishes a monthly review, the « *Revista de Tabacos* » (editorial office, Zurbano 28, Madrid) and monographs relating to the improvement of tobacco culture.

J. LEGROS.

Miscellanea.

CROPS OF TEMPERATE REGIONS

Wheat

CONTRIBUTION TO THE ECOLOGICAL STUDY OF THE WHEATS OF THE MIDDLE RHONE REGION (DRÔME-ARDÈCHE). (*Office Régional Agricole du Midi, Bulletin trimestriel* No. 43, July 1932 — Mlle. A. DUSSEAU). — A geographical description is given of the 'Plains and basins of the Middle Rhone', which correspond to the two Departments separated by the river : Drôme and Ardèche. Then follows a geological study of the region, which in the north is made up of plateaux and hills of molasse and various alluvial deposits.

in the south is undulating with sandy molasse or upper Cretaceous, and, particularly in the plain of Valence, fluvial terraces. A chapter is devoted to the climate, which is characteristic of regions of transition to a very irregular thermic system.

After descriptions of the different regions and agricultural systems the writer gives a detailed study of the wheat cultivation, showing that in Drôme the production is greater than the consumption, and in Ardèche *vice versa*.

One of the most important chapters deals with the varieties grown and their distribution. Drôme and Ardèche grow varieties belonging to the 5th group of BRÉTIGNIÈRE'S classification of the wheats of France, comprising barbed varieties, Tuzelle, Mottin and Barbu from the Central Plateau.

WEIGHT PER HECTOLITRE AND GLUTEN CONTENT OF WHEATS. (*Comptes Rendus Hebdomadaires des séances de l'Académie d'Agriculture de France*, 19 October 1932 — M. E. FLEURENT). — Replying to a previously published note on the absence of an absolute correlation between the specific weight and the gluten content in certain varieties of wheat, the writer shows that, if the method followed in arriving at this conclusion is quite correct as regards the proof of the fact, it cannot, on the other hand, by itself supply the complementary data necessary to establish the causes of this fact. To determine the comparative value of the wheats by taking into account only the composition of the flour at 65 % and the total quantity of nitrogenous matter of the grain, is inadequate when it is desired to know the absolute value of a given variety and to establish the laws which may govern the natural elaboration of the different constituent elements, which is of primary importance for selection studies.

The method recommended by the writer takes into account in detail all the factors of the composition of the wheat. Some years ago he showed that there is no absolute relationship between the total nitrogen content of a wheat and the gluten content of its albumen. The study of 29 varieties has led to the same conclusion. This lack of correlation seems to be due principally to the difference between the proportion of husks and kernel in different varieties, which difference may be as much as 6 % of the total weight.

The density of the albumen is greater by over 30 % than that of the pure husks. As the proportionate weight of the husks may vary by from 14 to 20 % of the weight of the grain, it would seem that there is for each sample a state of equilibrium between the husks and albumen which fixes the specific weight without any relation to other cases. And if the fact that the density of the albumen is dominated by that of the starch is taken into account, it would seem that it is mainly on the proportion of albumen, rather than on the content in nitrogenous principles, that the weight per hectolitre of cleaned grain depends. Other experiments by the same worker have shown that the quantity, and not the quality, of the wholemeal that can be obtained from different types of wheat is dependent on the weight per hectolitre.

D. K.

Olives

OLIVES AND OLIVE OIL, IN PORTUGAL. — The review *L'Olivicoltura* (Roma 1932, anno IX, n. 41) contains a study by M. Candido DUARTE on olive growing and olive oil production in Portugal. The acreage under olives is about 350,000 hectares, giving a mean annual production of 500,000 quintals of oil. A tree in bearing when it reaches the age of 15-18 years yields 10 to 15 kilos of olives and 2 to 3 litres of oil. The varieties grown are numerous and for the most part the same as those grown in Spain, Italy and Southern France. The main olive-growing regions are Santarem, Beja, Braganca, Castelo Branco, Tavora, Portalegre and Coimbra. The cultivation methods, fertilisers, propagation, exportation, price of the oil, etc. are also discussed.

METHODS OF PROPAGATING OLIVES IN RELATION TO CLIMATE, SOIL AND THE AFTER TREATMENT OF THE TREE. — M. L. GUILLOCHON, of the Botanical Service of Tunis, describes in detail in *La Revue Oleicole* (Nice, October 1932, No. 315) the various methods of propagating olives, namely, by seed, suckers and root and stem cuttings. Practical information is given about each of these processes, and the writer recommends taking into account when selecting the method to be used, the nature of the soil, the climate and the cultivation treatment which the tree will receive, because the olive shows marked differences in growth according to the nature of the ground.

PRODUCTION OF OLIVES AND OIL IN SPAIN. — M. J. RUIZ ALMANSA publishes in *El Progreso Agrícola y Pecuario* (Madrid 1932, No. 1745) a detailed account of the production and marketing of olive oil in Spain. In 1915 1,482,000 hectares were under olives; from that date until 1927 olive growing increased at a steady rate of 20,000 hectares a year. In the next four years (1928-31) it increased by an average of 47,000 ha. a year. In 1932 1,911,000 ha. are under olives, giving a production (mean for the last 5 years) of 20,520,000 quintals of olives, corresponding to a yield of 4 million quintals of oil. The mean yield per hectare of olives is higher in the central-southern zone than in the Mediterranean zone. The home consumption of oil is 2,200,000 quintals and the average exports reach 855,000 quintals per annum. The stock of oil now in the country amounts to nearly 2,500,000 quintals. The principal markets are Italy, the United States, Argentina and Uruguay. The value of the export trade is about 300 million *pesetas*. A number of tables of statistics and diagrams are given showing the importance of this branch of agriculture in the national economy.

A. P.

TROPICAL AND SUBTROPICAL AGRICULTURE

Miscellanea.

Cotton.

ACTIVITIES OF THE INDIAN CENTRAL COTTON COMMITTEE. — We have received from the Publicity Officer of the Indian Central Cotton Committee the following information.

I. — Improvement of Cotton Cultivation in the Punjab.

Naturalising American cotton to obtain better commercial crops. — Some interesting and valuable results have been obtained through the study of cotton cultivation in the Punjab Canal Colonies started jointly in 1925 by the Indian Central Cotton Committee and the Punjab Agricultural Department. The Indian Central Cotton Committee provided a Cotton Research Botanist and special staff and equipment for a Laboratory at Lyallpur. The Punjab Agricultural Department provided two agricultural farms and the staff required for cultivation and supervision. The scheme, which was originally sanctioned for five years in 1925, has been extended for another five years.

The problem of the Punjab has been the «failure» of the American varieties which cover an area of over 750,000 acres. This disappointing result has been evident in the lower yield, while there has also been a worsening of the quality of the lint. Research work has, therefore, been carried out along two lines. Efforts were made to find out the extent to which the «failure» could be checked by altering methods of cultivation or improving present methods. Secondly, to select and multiply a variety

which could resist the forces causing the « failure ». In order to ascertain simultaneously the possibilities of spreading *desi* cotton, pure strains were isolated with a view to find out if they would give as good a yield as American types.

Influence of environment. — One of the objects under investigation was to estimate the influence of environment on the crop. Detailed records were made of daily increases in the height of plants, the intensity and period of flowering, bud and boll shedding. Meteorological factors such as temperature, soil heat, period of sunshine, humidity, rainfall and special features such as dust storms were also recorded to determine their effects on growth of plants to be studied later.

Influence of climatic conditions. — It has been discovered that the failures have been due not to inherent soil conditions or irrigation, but to general climatic conditions. No separate climatic feature can be cited as the cause, but it appears to be the combined effect of a number of unfavourable conditions which weaken the plant. The coordinated study of meteorological conditions and plant growth has justified the procedure of isolating some new strains which could produce a normal healthy boll even under adverse conditions.

New strains evolved. — With this object an « *Early Strain* » of American and an improved strain of *desi* cotton (*G. sanguineum*) were evolved. The former was a distinct improvement on the present variety (4-F) both as regards yield and staple. It was an early maturing strain and seemed able to resist climatic effects. There was this additional advantage that, while the present 4-F variety easily mixes with inferior types and has brought a questionable reputation to Punjab cotton, the new variety had a much longer staple than *desi*. The new strain has also a high ginning percentage and returned a higher monetary value to the grower from his land.

Unfortunately, there was a severe attack of *jassids* in 1931 and it was then discovered that the new strain was not capable of standing up against it. This was a blessing in disguise because it proved the danger of distributing new varieties before subjecting them to tests against all local adverse conditions. The work of several years involving laborious study of thousands of plants, their growth, measurements of their individual qualities, comparisons of their results in many generations and the extension of selected plants for multiplication in field tests was not productive of definite immediate results. And if the strain had been introduced for general cultivation instead of special experiment (as was the case) and the *jassids* had come after their spread, there would have been created in the minds of growers a distrust regarding the value of recommendations of the research workers.

The research workers had now to turn their attention to the production of strains which could resist *jassids*. They succeeded in finding some of these among those isolated. The work of multiplying them has been taken in hand and a field-scale test is in progress. Further improvements may be expected in course of time. Observations on types of *desi* cotton have brought to light some strains which yield better results than these now in vogue. These are being multiplied for distribution to cultivators.

Agricultural improvements. — Other experiments in farms have been directed towards studying the effects of watering, new methods of cultivation, time of sowing, ways of manuring, etc. They are still in their early stages and no results have been recommended for general adoption.

It has been found that the Egyptian methods of ridge irrigation give the soil greater power to retain moisture. With about 20 per cent. less water it gives as good a crop as is produced by flat beds. Conservation of moisture in the soil is an important factor in determining the yield.

Artificial manures containing nitrogen give good results if applied when the plants have grown up to a certain height. But this means application by hand at the foot of the plant, as mechanical spreading would be wasteful and even injurious to the succeeding crop. Natural manures such as the compost with cotton stalks are easily applied before sowing and become part of the soil itself.

Observations regarding dates of sowing give different results from those obtaining in Sind where the climatic conditions are somewhat similar. Late sowing — about the middle of June — appears to produce better yields than April and May sowing.

Popularising new varieties. — The work of popularising new varieties of cotton is hampered to some extent by the conservatism of purchasers who prefer familiar types to new ones, even though the latter may be superior. It is, therefore, necessary to carry on propaganda to prove the excellence of new varieties. The crop should, of course, be produced in sufficient bulk to be a factor in the market. Similarly, seed distribution has to be made over a wide area to enable the grower to reap the benefits of these improved varieties.

Tea.

THE INFLUENCE OF THE DEGREE OF SATURATION AND THE HYDROGEN ION CONCENTRATION OF SOILS ON THE GROWTH OF YOUNG TEA PLANTS. — The experiments which produced the following results were carried out in the experimental garden of the Tea Experiment Station at Buitenzorg, Java. The soils were obtained from different tea estates. The pots were placed in a slightly shaded plot under natural conditions.

In order to vary the degree of saturation and the pH the soil in the pots was mixed with different quantities of powdered lime or sulphur. The pots were planted with tea seeds and at the end of the experiments the average height and the weight of leaves and roots of the plants in each pot were determined.

The following is a summary of the results. In no case had lime-manuring any favourable effect on the growth of the plants; the more lime had been added to the soil the less was the growth. In the pots with an alkaline reaction of the soil suspension the percentage of undeveloped seeds was noticeably greater than in the pots where no lime had been added, and later many plants died.

On the contrary sulphur increased the growth of the plants, which looked healthy and had a well-developed root system. Mixtures of lime and sulphur had a growth-stimulating effect only when the relation was such that the concentration of the hydrogen ions in the soil was increased and the degree of saturation diminished. The favourable effect of sulphur-manuring is thus due primarily to the increase of the hydrogen ions and the decrease of the exchangeable bases in the adsorption complex; but sulphur has also secondary results such as changing the physical and chemical conditions of the soil.

The best results were in general obtained by addition of sulphur in quantities such as to produce a $pH = 4$; the degree of saturation in this case is very low.

The conclusion that a $pH = 4$ of the soil suspension is the physiological optimum for the growth of young tea can however be accepted only with some reserve, since ÅSLANDER has proved that the influence of the hydrogen ion concentration on the growth of various crops is highly dependent on the concentration of the solutions.

The development of the tea plant is apparently not decreased in soils with a high exchange acidity. That the productions of tea estates on soils which show a high exchange acidity are in general very low must be due to the fact that these soils are poor and that the physical conditions are unfavourable for tea.

The good results obtained with sulphur-manuring on some soil types depend largely on the degree of mixing of the sulphur and soil. In practice sulphur may be used for nurseries and mixed during planting with the soil of the holes.

It does not follow that estates in bearing have the same requirements as young tea plants. The writer recommends investigating by field experiments the influence of the degree of saturation of the soil on the production of bearing estates and on the quality of dry tea. (PRILLWITZ P. M. H. H., *Archief voor de theecultuur in Nederlandsch-Indië*. Batavia, 1932, No. 2/3, pp. 1-122. In Dutch with summary in English).

W. B. & J. L.

AGRICULTURAL ENGINEERING

The First National Exhibition of Land Reclamation (Bonifica) at Rome.

On 1 October 1932 the First National Exhibition of Land Reclamation and Improvement (*Mostra Nazionale delle Bonifiche*) was opened in Rome. The object of the organisers is to demonstrate the results which the Fascist Regime has been able to achieve in this field during the last ten years.

Before describing the Exhibition itself, it seems desirable to give an account of the organisation of the services engaged in carrying out the work of the *Bonifica integrale* policy, which may be briefly described as the promotion of comprehensive land improvement schemes with a view to land settlement.

The official services connected with *Bonifica integrale* are grouped together in the Division of a special Under-Secretary of State at the Ministry of Agriculture and Forests, having at his disposal both consultative and executive organs.

The former include : the Council of State and the Treasury Attorney's Department (*Avvocatura Erariale*), the Higher Council of Public Works to which are attached the Committees of the Regional Institutes for Public Works (*Istituti decentrati delle opere pubbliche*) where such exist, and the Technical Committee of each Province.

The executive bodies connected with the Division are the General Directorate of the *Bonifica integrale*, the *Provveditorati alle Opere pubbliche* or official agencies for arranging for the execution of public works, and three purely technical organs : the Corps of Civil Engineers (*Genio Civile*), the National Forestry Police (*Milizia Nazionale Forestale*) and the Regional Agricultural Inspectorates (*Ispettorati agrari*).

In some cases the schemes of public works for land improvement are prepared and carried out directly by the State with the assistance of the specialised personnel of the technical corps referred to above. It is however the more general rule that these works should be planned and executed by associations of concessionaries, usually Consortiums of local landowners, on the basis of proposals previously submitted to and approved by the Government advisory technical organs.

Within this State organisation other Departments, not attached to the Under-Secretary's Division, work on collateral lines in connection with the *Bonifica integrale*. These include the General Department of Public Health (*Direzione*

generale della Sanità) of the Ministry of Internal Affairs, which is especially concerned with the control of malaria through various forms of sanitary prophylaxis and medical aid, and the Commission for Internal Migration and Land Settlement (*Commissariato per le migrazioni interne e la colonizzazione*), which, under the authority of the Presidency of the Council, establishes, in the reclaimed areas, settlers from the more densely populated regions, where there is an abundant supply of farm labour.

Parallel with the State organisation of Land Improvement Services, two semi-official (*parastatali*) bodies are also associated with the movement, the National Association of the Consortiums for Land Reclamation and Irrigation (*Associazione Nazionale dei Consorzi di bonifica e irrigazione*), and the National Secretariat for Mountain Lands (*Segretariato nazionale della Montagna*), the Under-Secretary of State for *Bonifica integrale* acting as President in both cases.

Among other bodies coming under State control and working in the same sphere, the National Ex-Service Men's Institute (*Opera Nazionale dei Combattenti*) takes a very important place. This institution under the general supervision of the Presidency of the Council of State, undertakes the purchase, compulsory where necessary, of land where reclamation and improvement can be carried out with advantage. On such lands an intensive cultivation is first initiated by the *Opera*, and they are then distributed among the families of farm workers and ex-service men.

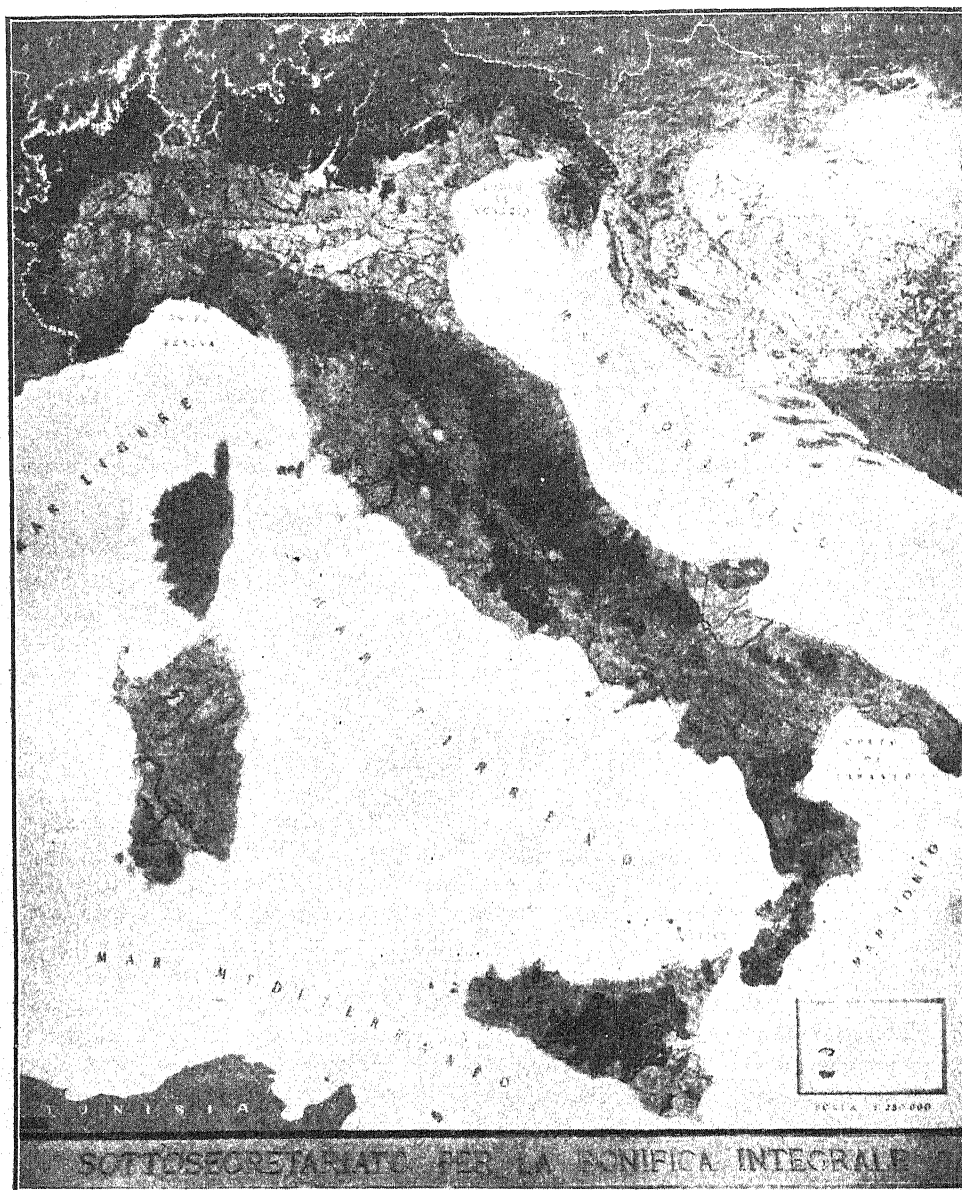
Examples of the work of all the various departments and organisations here mentioned are to be seen at the Exhibition in Rome.

In the Central Hall, a large relief map of Italy shows all the areas, in general either unproductive or uncultivated and at the present time subject to a spasmodic kind of extensive cultivation, which are known as *comprenditori di bonifica* or areas grouped for reclamation and improvement. In addition there are traced on the map the boundaries of the mountain areas on which important improvement works are in course of execution, represented chorographically and so as to show the fundamental statistical data. Two further relief plans of a typical area before and after improvement serve to give a concrete and accurate idea of the real meaning of an enterprise of *bonifica integrale*, and of the various kinds of work implied therein. On the walls of the Hall, eight two-leaved designs represent the results already accomplished in regard to increase of production, increase of employment and reduction of seasonal or casual labour.

The Directorate of Public Health, the National Association of Consortiums for Land Reclamation and Irrigation, the National Fascist Confederation of Farmers (*Confederazione nazionale Fascista degli agricoltori*), and the Secretariat for Mountain Lands, all have their exhibits in the same Central Hall.

The Directorate of Public Health (Ministry of Internal Affairs) stages a highly interesting display, which may be divided into three groups: (1) a section explaining the importance of the malarial problem in Italy, the distribution of the disease and its effects in the Kingdom as a whole and in particular regions; (2) a section to illustrate the causes of infection, the life-history of the parasite and of the fly which is the carrier of infection, and environmental

Map of Land Reclamation in Italy.



conditions ; (3) a complete documentation intended to illustrate for the benefit of visitors the methods of dealing with the disease in human beings, of protection of healthy individuals, and of carrying out mosquito control in a given area.

The National Association of Consortiums exhibits a relief map on a 250 millimetre scale, showing all the Consortiums, grouped according to their respective categories, which are in receipt of assistance from the Association and are under its inspection and supervision. In this section there are also to be seen some valuable charts giving a summary statement, showing for each category the number of the Consortiums and the total extent of the areas (in hectares) thus grouped.

It will be observed that there are 215 Consortiums, with 2, 666, 261 hectares, for land drainage improvements (*bonifica idraulica*) of the first category ; 88 Consortiums of this type of the second category with 233,938 hectares ; 74 Consortiums for land development (*trasformazione fondiaria*) with a total area of 1,452,682 hectares. The Consortiums for irrigation works number 550 with 814,148 hectares; there are nine Consortiums for the regulation of mountain basins covering 115,569 hectares, and 142 land drainage Consortiums of the second and third categories with 599,894 hectares.

The National Ex-Service Men's Institute and the Commission for Internal Migration and Land Settlement have their exhibits in two separate halls situated at the end of the two great wings of the Exhibition Pavilion.

The *Opera Nazionale dei Combattenti* presents a synthetic view of its activities in the sphere of *Bonifica integrale*, by a series of diagrams, and a diorama, representing some of the principal improvement works now being carried out, including the Pontine Marshes (*Agro Pontino*) near Rome, Albarese (Grosseto), Isola Sacra (Rome), Coltano (Pisa), Porto Cesareo (Lecce).

The information to be gathered from the exhibit of the *Opera Nazionale dei Combattenti* goes to show that its activities in land improvement work extend over a territory of nearly 542,000 hectares, including 450,000 which are under land drainage improvement, and 92,000 on which further land development operations are in progress ; that the whole of the operations so far carried out have involved an expenditure of about 240 million liras, and that its work is being carried on in all the regions of the Kingdom, from Piedmont to the Julian Venetia and from Sicily to Sardinia.

The exhibit of the *Commissariato per le Migrazioni* consists of graphs, photographs, etc., illustrating its activity in regulating the movement of workers as between the different provinces, with the object of achieving an equilibrium in labour supply. Accordingly the main object is to elucidate the work of the Commission in the transference of families from the highly populated zones to the areas for land settlement, and in particular to the areas on which improvement has already been secured. Evidence is also given of its efforts to find regions requiring settlement, and to select families physically suitable for the purpose, as also to establish such working conditions as may be favourable to the settlers. The object throughout is to establish the peasant on the land that he works which will one day become his own.

From 1 July 1930 to 31 August 1932, the Commissariat has effected the transfer of more than 1000 families of peasants in the Kingdom, in the Colonies and in Albania, and sums to the amount of nearly 1,700,000 liras have been granted in premiums to settlers and for social welfare schemes.

* * *

In the two large wings of the pavilion the material relating to the land reclamation zones is exhibited according to regions. Here public works are executed to a limited extent by the State, and to a larger degree through concessions to the Consortiums, or by the National Ex-Service Men's Institute (*Opera Nazionale Combattenti*), while the various landowners carry out, so as to supplement the works already indicated, such operations as are within their competence.

Northern Italy. — The most extensive of the Italian territories brought under the land reclamation scheme is that area which extends in the shape of a fan over about one million hectares, on the right and left banks of the Po. In the zone of *S. Donà di Piave*, the area in the hands of Consortiums is about 37,837 hectares. This has been almost entirely parcelled out in private holdings, with a gross increase in production of about 70 million liras. State assistance in the expenditure has taken the form of a subsidy of more than 100 million liras, for canals, land drainage installation, roads, piping of drinking water, etc. The model of a pumping plant shown will give the visitor a clear idea of the methods in use for the drainage of any area.

In the province of Udine special attention should be drawn to the land development work done on the large area of *Bassa Friulana*, which consists of 70,000 hectares. Here, by means of a series of works of land drainage reclamation at different stages, a new problem is being solved; the regulation of a very large quantity of water (which up to the present has been forming swamps or been lost in the sea) with the object of draining the marshlands, as well as of bringing lands already cultivated under a more intensive form of irrigated cropping.

Another problem, differing from those already discussed, is found in the *Comprensorio* (lands coming under the provisions of the Decree for integral land reclamation) of *Istria*, owing to the well-known phenomenon of *Carsic* erosion, by which populations obliged to live on the parched soil were reduced to destitution. Hence arises the necessity — which may be described as recurrent through the centuries — for the *Aqueduct* of *Istria*. In this connection an expenditure of about 200 million liras has already been budgetted, and catchment works have been begun at *San Giovanni Pinguente*, and a start made with the conduit system at a cost of about 37 million liras. For the construction of this great aqueduct, the Province and the 47 Communes of *Istria* are grouped in a single Consortium with headquarters at *Capo d'Istria*.

Passing on to *Emilia*, some particularly characteristic and important land reclamation works are to be found, such as the extensive *Burana* scheme, covering 72,000 hectares between the Po, *Secchia* and *Panaro* and those of *Parmigiana Moglia* for an area of 71,000 hectares, lying between the *Volano Po* on the south and the true Po on the north.

As regards Lombardy mention may be made of the land reclamation zones of Mantua, Cremonese Mantovana and Bassa Lodigiana.

Central Italy. — It may be noted that the most important land reclamation schemes of Italy are those relating to the alluvial plains of the Tyrrhenian littoral, or western Mediterranean shore, extending from the river Serchio (reaching the sea just south of Spezia) to the Sele, which falls into the Gulf of Salerno. Of these part are in Central and part in Southern Italy.

Taking first the Tuscan Maremma, the characteristic feature in the reclamation work for this area is the attempt, not so much to drain the low lying lands, but rather to raise their level by the application of waters holding abundant soil in solution. The plain of Grosseto covers about 31,650 hectares on the right of the Ombrone and is bounded by the hill slopes, the Via Aurelia, and the sea. This area was granted to a Consortium formed in 1928. Out of 31,600 hectares 10,000 have been reclaimed from a state of marshland, 10,000 have undergone important changes in regard to the run-off of waters, and 10,000 have been subjected to operations of land improvement on a large scale which are still in progress. The remaining part consists of the « *gronde* » (rolling plains) which were already under cultivation.

The Roman Campagna has been from all time the object of enterprises and efforts which have remained unfortunately without result. When however a comparison is made between the former conditions of the Campagna with its vast abandoned tracts, on which the sole sign of life was represented by a flock of grazing sheep, with the present day aspect of the same zone, a far reaching transformation is observed, the final goal of which is the complete restoration of the « *Agro Romano* ».

In the alluvial lowland of the Tiber, three land drainage schemes have been accomplished by means of the pumping and drainage plants of Ostia, the Isola Sacra, and Porto e Maccarese, the total area affected being more than 20,000 hectares.

The land improvement area of Porto e Maccarese covers 10,186 hectares and consists of the plain on the right of the Tiber between the river and the Fosso delle Pagliete or Fosso dei Tre Denari. The Maccarese improvement scheme was begun by the State in 1890, but the work was on too small a scale to secure really satisfactory results. When in 1926 the Consortium was formed, the scheme was resumed and within the space of a few years (1926 to 1930) the operations were brought to a satisfactory conclusion.

Before reclamation, the population consisted of from 50 to 60 families; at the present time it numbers some 4,500 settlers. At that time the agricultural production was worth 1,300,000 liras and to-day its value amounts to nearly 20 millions.

A few years ago the age-long problem of the reclamation of the marshy zones of the « *Agri* » of Piscinara and Pontino, covering together 76,000 hectares, was once more attacked. The various attempts at reclamation in the past had left these regions in a most desolate condition. Hydraulic operations, construction of roads, establishment of primary rural centres, were undertaken and carried out in the zones of Piscinara (about 50,000 hectares) and of Pontino (about 26,000 hectares) by the respective Consortiums of landowners.

Up to the present time a sum of 350 million liras has been set aside for these operations, of which 140 millions have already been expended.

In the region of the Pontine Marshes, between the « Sisto » or former Sistine canal and the foot of the Lepini Mountains, the problem is to drain about 14,000 hectares of lands lying at very low level and forming a series of depressions liable to winter flooding. The largest and most intractable of these is the Quartaccio depression situated below Sezze and between the Lepini and the Appian Way. Of the remaining 12,000 hectares, about one half consists of higher lands, not subject to inundations, and the other half of lands at a level allowing a direct run off to the sea, so that it is not necessary to raise the water by pumping.

In the absence of a preliminary planimetric and altimetric survey of the whole territory, it has not so far been practicable to complete the draining of the depressions here mentioned. Such a survey has now been put in hand by the Consortium, and has made possible an exact delimitation of the low lying areas with a view to the operations for raising the water levels, which are now in progress.

At the present time there is also in progress the work of diversion of waters coming from beyond the bounds of the territory, as veritable torrents, descending from the Lepini Mountains and discharging into the Amaseno channel which thus find their way to the sea.

As a result of other complementary operations, the zone of Piscinara and the Pontine zone will become available for the reception of farm workers (*braccianti*) from upper Italy (*Alta Italia*). The National Ex-Service Men's Institute has been placed in charge of the execution of the whole scheme, and has taken over in their entirety the lands which were formerly the property of a large speculative company. Out of the 18,000 hectares thus acquired, making up the area lying between the Via Appia and the Lago Fogliano, a parcel of about 10,000 hectares has been lately brought under cultivation by the *Opera*, after previous breaking up of the ground. Rural dwellings to the number of 520 have been erected and are now inhabited by settlers from Venetia to whom technical and financial assistance will be given. At the central point of this zone, the *Opera Nazionale dei Combattenti* has established the new rural centre which forms the Commune of Littoria.

Southern Italy. — In the region of Campania there are far reaching possibilities for large scale reclamation works. From the « *Comprensorio* » (special development area) of Fondi reaching to Monte S. Biagio, southwards by the valleys of the Garigliano, the middle and lower Volturno, as far as the lowlands lying on the right and left banks of the Sele, eleven Consortiums and other organisations are the present time engaged on the reclamation of lands extending to upwards of 100,000 hectares. The majority of these lands are alluvial and highly fertile, but, owing to the absence of any regulation of the waters, they have been for ages abandoned to quite primitive forms of cultivation.

The necessary hydraulic work, which has been accelerated by a combination of the old methods of warping and canalisation with modern mechanical methods of water raising, is now almost completed throughout the area, or is far advanced. In certain regions it is associated with important irrigation works.

The presence of short torrential streams, falling into the sea from various altitudes ranging from 1000 to 1800 metres, is a characteristic feature in Calabria. These streams are liable to sudden and extensive spates, which frequently result in the flooding of the neighbouring fields, followed by the formation of pools which are typical breeding grounds for malaria. Hence reclamation work in Calabria largely consists in the construction of reservoirs in the hills in order to check the descent alike of water and of detritus, and also in the banking of the lowest reaches of the streams on the lowland with the object of preventing inundations.

In accordance with the most recent principles of *Bonifica integrale*, the hydraulic improvements in the valleys are carried out in close relation to improvements and corrective work in the mountain lands and are by no means limited to the marshlands. Improvement schemes are also applicable to the hills and mountain sides where farming conditions are unsatisfactory, and thus hill and mountain areas are frequently classed as areas for land improvement work.

The Islands. — Sardinia supplies a remarkable instance of the successful establishment of artificial lakes, serving as valuable reserves of water in a land where drought prevails for several months. The lake that has been formed at Tirso by means of the dam of Santa Chiara di Ula is one of the largest in Europe and has a capacity of 140 million cubic metres of water.

Sardinia is thinly populated, with only some 40 inhabitants to the square kilometre, and thus offers good possibilities for the immigration of farm settlers from other regions where there is a surplus population.

The Land Improvement Company of Sardinia (*Società Bonifiche Sarde*) has supplied a remarkable example of settlement work at Terralba. Here an extensive area of about 400 hectares, formerly all waste and scrub, is now occupied, and under cultivation, and irrigation farms have been established using the water from the Tirso Lake. These farms are now being worked by immigrants from Venezia. Similar settlements will become increasingly possible in other districts where improvement work is now in progress and carried out either by Landowners' Consortiums, as for example on the right bank of the Tirso Lake, by the *Consorzi riuniti sud-orientali*, by the National Ex-Service Men's Institute, or by the provincial authorities of Decimoputzu.

In the central region of Sicily the problem of *Bonifica integrale* is in a large measure identical with that of the transformation of the «Latifundia», which in certain territories naturally gives place to a gradual process of subdivision and transfer of ownership, and to a partial introduction of rotation cropping. In the plain of Catania, which is the largest section of the plain of Sicily, large hydraulic operations will shortly be brought to a conclusion.

* * *

From this brief description, it will be seen that the Italian Government is consolidating and extending the territorial basis of the Nation, by the formation of new centres of life on sound physical and social lines, and further that it is pursuing with a remarkable tenacity an enterprise of far reaching scope under the title of *Bonifica integrale*.

H. J. H.

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ANIMAL HUSBANDRY

Miscellanea.

STOCK FARMING IN THE U. S. S. R. SINCE 1928. — In view of the scarcity of information so far published on the growth of stock farming in the U. S. S. R. since the introduction of the five-year plan and more precisely, since the collectivisation of peasant holdings, a detailed study of this subject fills a much felt gap. The report in question is that prepared by Otto SCHILLER, agricultural expert to the German Embassy at Moscow (*Berichte über Landwirtschaft*, Berlin, 1932, Neue Folge, Vol. XVI, No. 3). This report, dealing with all the agricultural problems of the U. S. S. R., stresses the special importance of the development of livestock rearing. "The failure of stock breeding" the report in fact states, "is the greatest and most serious setback which the Soviet Government has received during its policy of the five-year plan".

The number of livestock has heavily decreased since collectivisation, due to the large scale slaughter effected by peasants in order to save their livestock from collectivisation. After the issue of severe decrees against such slaughterings, cattle diseases spread because the peasants were afraid to slaughter animals which really were infected. And even the steps taken since this period for the "socialist reconstruction of herds", have not up to now successfully checked a further diminution of livestock numbers. The result is a decrease of total livestock in the U. S. S. R. by from $\frac{1}{2}$ to $\frac{1}{3}$ since 1919.

Socialist reconstruction means the creation of vast organisations specialised in stock breeding, analogous to the great State organisation for the production of cereals.

But the setting up of these organisations for livestock rearing apparently encounters much more serious difficulties and greater possibilities of loss than the collectivisation of the land. Despite all the efforts made, it had, in 1930, been possible to concentrate only a relatively small percentage of total livestock numbers in the "Sovkhozi" (State farms) and in the "Kolkhozi" (collective farms). Even in 1931, most of the domestic animals were still in the hands of individual owners. Until March, 1932, there was a tendency to accelerate the collectivisation of livestock, leaving each peasant, however, a cow and a few head of smaller animals. But during this month the disastrous conditions of the Soviet livestock industry led to the issue of a decree forbidding, for the future, the compulsory collectivisation of domestic animals.

The socialist organisation of livestock consists, as mentioned above, of large stock breeding enterprises which, in their turn are controlled by specialised trusts. There are already in existence such trusts for horse-rearing, for the production of beef cattle, for the production of milk and butter, for pig-rearing, sheep-rearing and also State farms for the production of poultry and rabbits. Besides these State enterprises, the collective organisations for breeding are also of very great importance and are likewise specialised for the different kinds of stock. The concentration of domestic animals under the control of large organisations has, in spite of the precautions taken, led to large losses due to disease. Efforts are being made to reduce these losses by increased veterinary activity and by an extended production of vaccines.

Until 1931, the tendency was to make the stock farms as large as possible; but owing to the lack of experts and skilled personnel, it was not possible to avoid grave errors in feeding and management. Since 1931, attempts have been made to reduce the size of the farms and to limit the number of animals kept by each farm. In the first two years of their existence, these farms have been subject to continual changes: and, in consequence the animals have had to be moved from place to place, entailing considerable loss.

The most grave problem in the organisation of stock rearing in the U. S. S. R. is that of fodder provision. The transport of animals into the newly created farms has not been, and could not be, accompanied by a corresponding transport of fodder, and in consequence, these farms have often experienced a shortage of fodder, while supplies were deteriorating on private farms deprived of livestock.

According to the new regulations, each stock farm must be in a position to produce 100 % of its requirements of fodder and 50 % of its requirements of concentrated feeds. In the interval before these measures could give tangible results, some stock farms, especially in western Siberia and the Volga region, experienced, during the winter of 1931-32, a severe shortage which caused considerable losses of animals. Attempts will also be made by introduction of silage, to check the losses due to fodder shortage.

The plans for the delimitation of areas for the rearing of different breeds of domestic animals are very interesting. The number of cattle breeds, at present 54, will be reduced to 14 to which will be added 5 foreign breeds, namely: lowland black and white cattle, Simmental and Schwyz, Shorthorn and Hereford. The largest breeding area will be that of the Simmental cattle, whereas the other breeds will be distributed and allotted over the whole of the territory of the U. S. S. R. according to their economic qualities and needs. The pigs at present reared in the territories of the U. S. S. R. will be eliminated, according to the plan, by crossing them with the English Yorkshire breed, the "veredeltes Land schwein" (improved native German pig) and the German "Edelschwein". Similar transformations will be made for sheep.

For the rapid realisation of this breeding programme, recourse has already been had to artificial fertilisation, which seems to have given results permitting a large-scale application. By means of this method it is hoped to obtain results earlier, as the number of really valuable breeding animals is small and the standard of Russian breeds very low. But it is still not known whether, after its application through several generations, this method will not prove to have some disadvantages as regards the constitution, reproductive value and vitality of the animals and some experts already recommend prudence in its use.

S. T.

RELATIONS BETWEEN HORSE-BREEDING AND THE OVER-PRODUCTION OF GRAIN IN AMERICA. — A recent publication of the "Horse Association of America", studies the repercussions of mechanisation and the decrease of horse numbers on the over-production of cereals. This Association estimates that the reduction of 6 million head in the number of horses and mules has been the cause of the sowing to cereals for human consumption of 18 million acres previously devoted to fodder production. According to the data of the same Association, 371 399 000 acres were used for production of animal motive power; today, only 52 905 000 acres are employed for this purpose. The too rapid diffusion of motors has considerably reduced agricultural revenue derived from horse-rearing. Moreover, a large part of fodder production, which generally does not enter into trade and which was utilised by horses, now finds no use. The overproduction of cereals and the fact that the farmer must now market concentrated feeding stuffs formerly consumed on his own farm are in part due to an over-rapid diffusion of mechanisation. The greatest inconvenience to the farmer is, however, that he must pay cash for fuel and repairs, whereas he sells his agricultural products at prices much lower than those of industrial products. The use of animal traction does not demand putting money into circulation.

The partisans of mechanisation aver that the growth of the automobile and tractor industry has improved the market for agricultural products but this opinion is erroneous, since when the sale of machines ceases, purchasing power diminishes very rapidly.

In view of this situation, the "Horse Association of America" is making active propaganda in favour of animal traction in order to check, in part, the over production of cereals.

NEW METHOD OF PURCHASE OF EGGS IN BULGARIA. — At the instigation of the egg producers and exporters, a conference for the improvement and development of the export trade in eggs has been held at the Bulgarian Ministry of Agriculture. The conference has decided that, henceforth, exporters shall buy for export only eggs having a minimum diameter of 40,25 mm. They are obliged, however, also to buy eggs of smaller dimensions but at a purchase price reduced by 15 %. These eggs are for home consumption. (*Eierverbörse*, 1932, No. 38, p. 605).

E. M.

AGRICULTURAL INDUSTRIES

Color in milk as affecting its marketability.

INTRODUCTION. — The color of milk as determined by the eye may vary considerably from an almost pure white to rich yellow color depending upon various factors such as fat content, breed of the cow, and feeds consumed by the cow. Indeed there are some milks that have a faint blue cast. The total color

of milk is composed of the light reflected from the materials in colloidal suspension (protein and minerals), from the fat in emulsion, and from the pigments present.

The ideas of the relation of the color of milk to its richness are well fixed in the minds of many consumers. To them a yellow milk indicates a rich milk and a white milk an « ordinary » milk; whereas a bluish tinge indicates skimmed or watered milk. Such opinions are of economic importance to the fluid milk industry and many dealers have capitalized on their value.

REVIEW OF LITERATURE. — Experiments have been reported (1)* concerning the relation of feeds and the breed of cattle to the color of the fat in milk.

PALMER (2) found a relation between the carotin content of the feed consumed by the cow and the color of the fat in the milk. This led to the classification of feeds as to carotin rich and carotin poor. Among the carotin rich feeds are carrots, green alfalfa hay, fresh pasture grass, green corn fodder, new corn silage, and all soiling crops. The carotin poor feeds include cottonseed meal, timothy hay, white corn, yellow corn, wheat, and oats. It is thought that there is a relation between the lactochrome (blue-green pigment of whey) and the feeds (2).

PALMER and COOLEGE (3) found that a high-protein diet may cause a high urachrome content of the urine. It is thought, because of the similarity of the pigments, that there may be a relation between the urachrome content of the urine and the lactochrome content of milk.

Although it has been known for several years (4) that vitamin A is present to a greater extent in milk from cows consuming green feeds, it has been established only recently that there is a close relation between carotin and vitamin A. MOORE (5) found 'carotin' from the carrot root, purified by many crystallizations, possessed vitamin A activity in doses of 0.01 mg.

EXPERIMENTAL METHODS. — Although the factors related to yellow color in milk have been fairly well established the cause of the blue appearance of skim milk has been subjected to very little investigation. This undoubtedly has been due to the complexity of the problem as well as to the difficulty in measuring the color of milk. Nevertheless, this is of importance since some milk dealers have received complaints from their trade because their bottled milk showed a blue skim milk below the cream line.

In this study an attempt has been made to establish the relation of certain factors to the blue color of skim milk.

The milk for this study was secured from a portion of the University of Illinois Purebred Dairy Herd, during an experiment in which comparisons were being made as to the relative merits of feeding cottonseed meal, linseed oil meal, and ground soybeans, as protein supplements to a uniform basic ration.

The pasteurized samples were heated in glass flasks submerged in hot water, the temperature of which was carefully controlled. The samples were stirred

* The numbers in parenthesis refer to the literature cited; see p. 443 [Ed.].

frequently while being heated. A uniform holding time of 30 minutes was used for all pasteurizing temperatures.

The percentage cream volume was measured after the samples had been held in 100 cc. cylinders for 20 hours at approximately 40° F. The cream layer was removed from the cylinders as completely as possible by means of suction and a small glass tube. Subsequently samples of skim milk were drawn from the bottom of the cylinder. The fat contents of the samples were determined by the BARCOCK test and the color determinations were made by means of the KEUFFEL and ESSER color analyzer.

EXPERIMENTAL RESULTS. — The principle involved in the operation of the color analysis is the comparison of the quantity of light reflected at various wave lengths from the substance as contrasted with the light of the same wave length reflected from a standard white substance.

Thus as indicated in Chart 1 the straight line at 100 parallel to the base is indicative of the relative quantity of light reflected from a white substance at the various wave lengths. The curved lines on Chart 1 indicate the relative light reflected from a sample of 25 per cent cream as compared with five representative samples of skim milk to one of which a volume of water had been added equal to the volume skim, and the fat standardized by the addition of cream.

The effect of the temperature of pasteurization on the color of the skim milk after creaming is shown in Chart 2. Milk pasteurized at 140° F. reflected less light at all wave lengths other than in the blue range. The greatest relative amount of light reflected from each of the samples was in the blue-green range. This was also the dominant hue of the pigment in the whey samples examined.

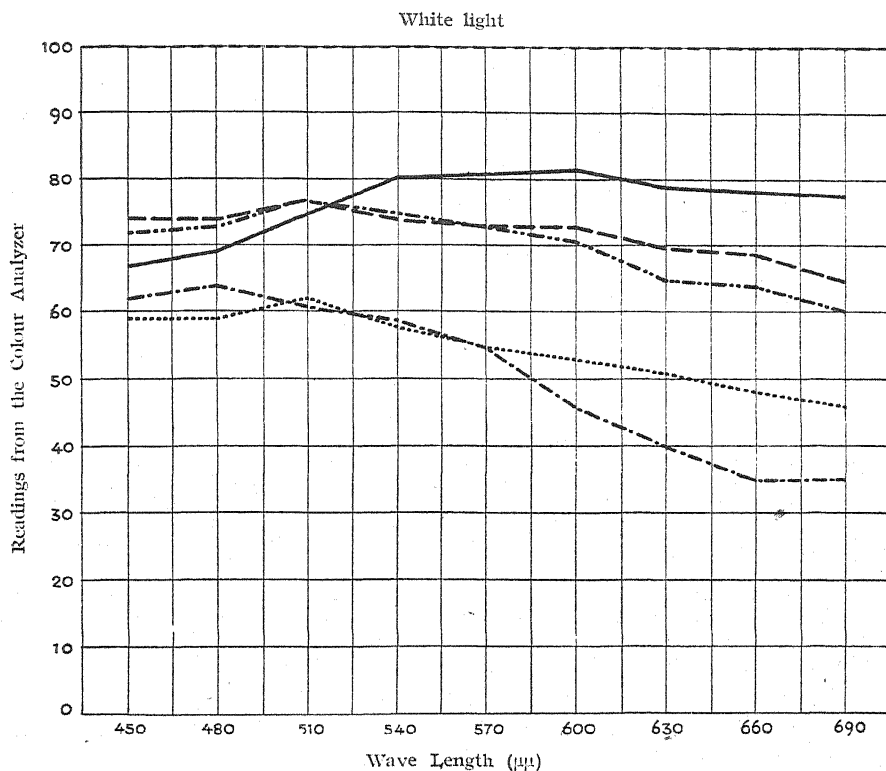
In order to study further the effect of pasteurizing temperature on the color, the data were translated into terms of the three fundamental attributes of light, namely, relative luminosity, dominant wave length, and percent purity, according to the methods furnished with the color analyzer.

The relation of the fat test of skim milk to the relative luminosity is shown in Chart 3. The relation of the pasteurisation temperature of skim milk (0.3 % fat) to the relative luminosity is shown in Chart 4. The influence of the fat test on the dominant wave length is shown in Chart 5. The relation of the cream volume of pasteurized milk to the fat test of the skim milk, and the relative luminosity of the skim milk with an increase in pasteurization temperature is shown in Chart 6.

The relation of the dominant wave length and purity of color to the appearance of the sample cannot be shown conveniently by charts. However, it was demonstrated that a sample of skim milk may appear blue to the eye if the dominant wave length is near the dominant wave length of the water soluble whey pigment. The addition of a quantity of methylene blue, equivalent to the quantity used in the methylene blue reductase test, did not change the dominant wave length of a sample of skim milk which appeared blue to the eye. The relative luminosity, however, was reduced approximately in proportion to the dilution of the sample with the water added and the percentage purity of the dominant color was changed from 4 to 12.5 %.

The data accumulated were not sufficient to show conclusive differences in the effects of the protein supplements fed on the color of the milk. There seemed to be a correlation between linseed oil meal and the increase in the blue,

FIG. 1. — *The colour of skim milk as compared with the colour of cream and white light.*



KEY:

- Sample containing 25 % cream
- - - Skim milk containing 0.7 % fat
- · - · - Skim milk + 28 % cream
- · · · · Skim milk + water
- - - - - Skim milk + methylene blue

green, and yellow color; and between ground soybeans and the increase in red color. The milk samples used in these tests were standardized to a uniform fat content of 1 %.

Likewise, the information secured concerning the relation of the blue color to the individuality of the cow is not sufficient to draw definite conclusions and

FIG. 2. — *Effect of pasteurizing temperature on colour of skim milk after creaming (40° F. for 20 hrs.)*

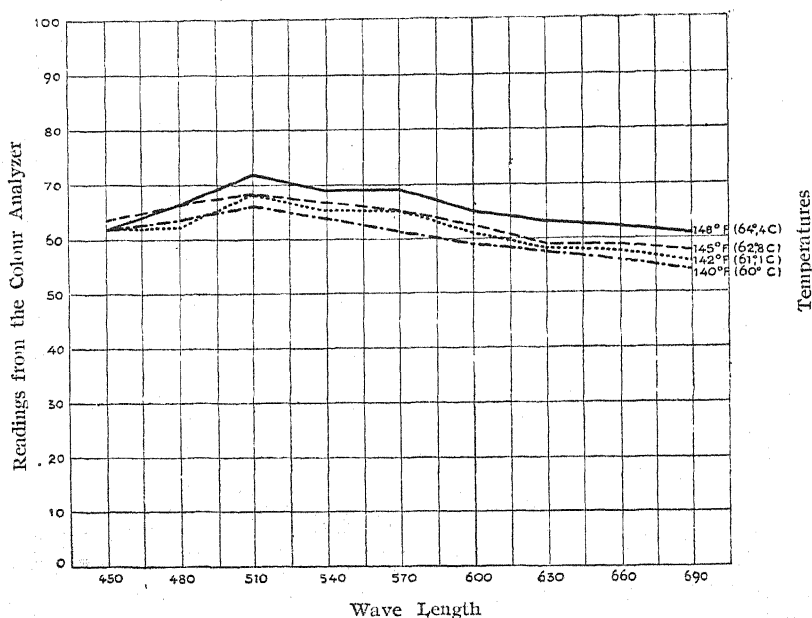
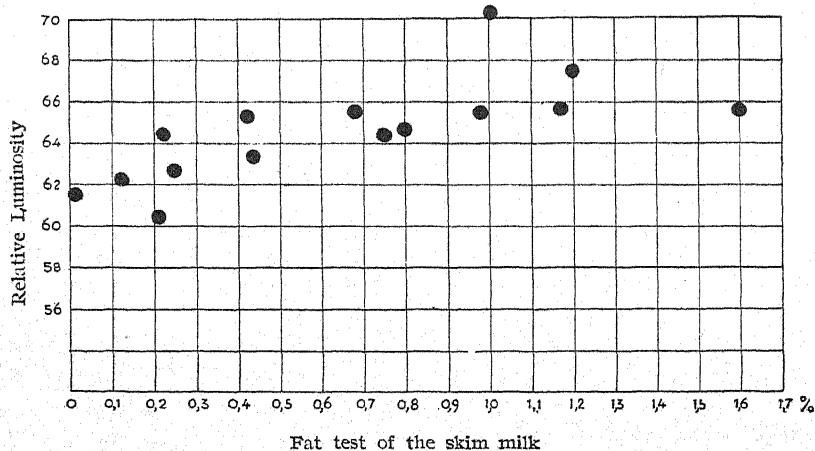


FIG. 3. — *Relation of the fat test of skim milk to the relative luminosity*



yet there is reason to believe that milk from high-producing cows will have less blue color than the milk from relatively low-producing cows.

In the consideration of pasteurized milk the temperature of pasteurization was probably of greatest importance. In the range of pasteurization temperatures (140-150° F), the creaming ability gradually decreased from a maximum at about

FIG. 4. — *Relation of the pasteurizing temperature to the relative luminosity of machine separated skim milk.*

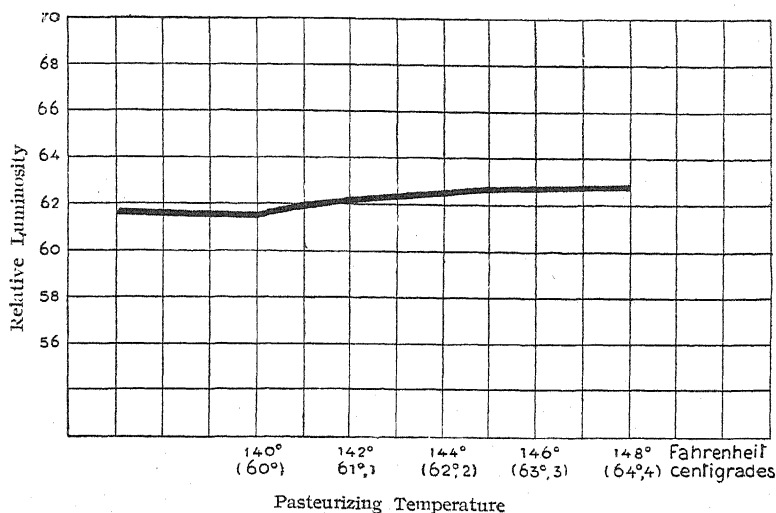
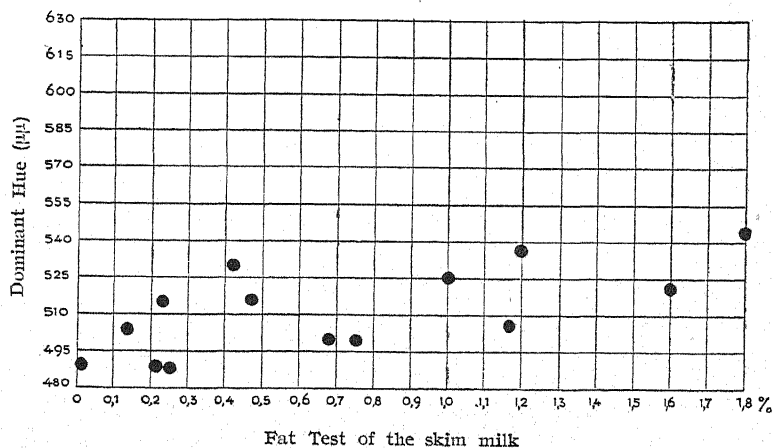
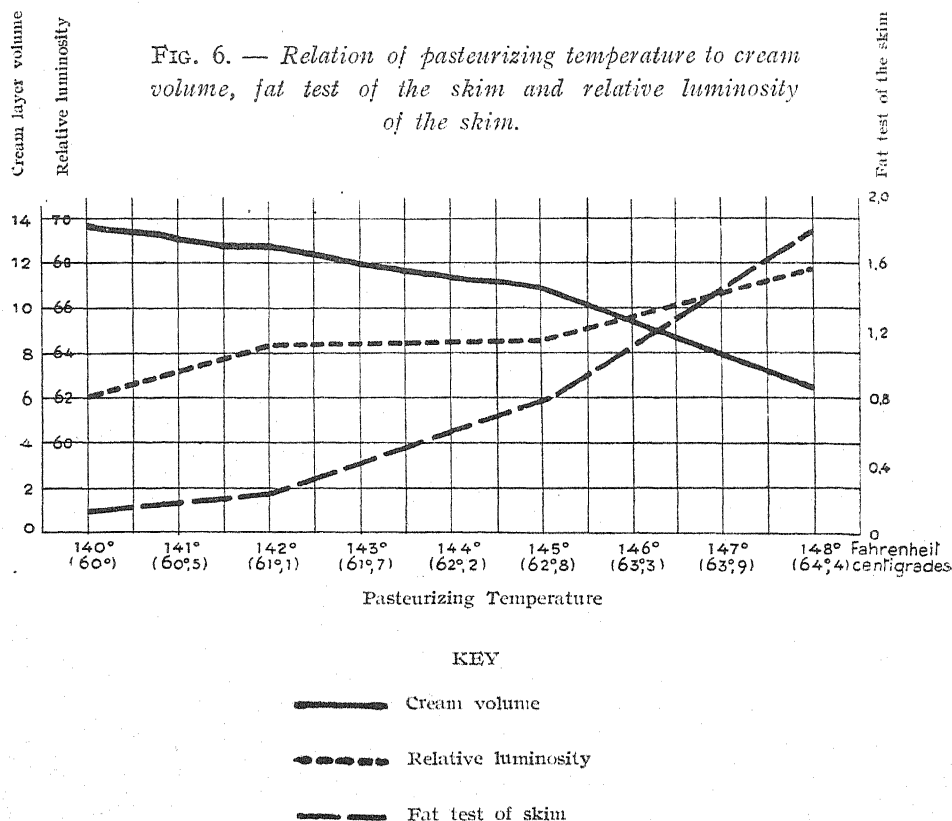


FIG. 5. — *Relation of the fat test of skim milk to the dominant hue.*



140° to very little at 150° F., and distinct changes in the color of the skim milk were followed. As the holding temperature in pasteurizing was increased (140 to 150°) there was a decrease in the creaming ability, an increase in the fat content

of the skim, and an increase in the relative luminosity. There was also a change of dominant hue from that approximately the same as in whey (within the blue-green range $490 \mu\mu$ to $513 \mu\mu$ wave length) to the border line between the yellow and green range. This change in dominant hue was undoubtedly due to the increase in fat content. As shown by Chart 5 there was a marked change in dominant hue of skimmed milk with an increase in the fat content, although different samples of the same fat content varied greatly. The change



in dominant hue together with a change in the purity of the dominant color and the relative luminosity determine the effect on the human eye.

Thus it is seen that pasteurizing milk for 30 minutes at 140° F will tend to develop a maximum blue color in the skim milk while temperatures of 143° - 145° will tend to cause a more nearly white appearance without injuring the cream line excessively. However, the change which takes place is not due entirely to the fat. While there was a definite increase in the luminosity with an increase in the fat test, as shown in Chart 3, there was a definite increase in the relative luminosity of the skim milk when pasteurized at increasing temperatures in the range of 140° to 150° . In other words, there was a change in the quantity of

light reflected from skim milk as the pasteurizing temperature was raised in the range at which the detrimental effect on creaming ability of milk took place. Additional studies along this line may be valuable contributions to the theory of creaming of milk.

During a period when many of the cows were "off feed", in other words experiencing a digestive disturbance, the milk had a tendency to appear blue in samples containing as much as 1 per cent fat, whereas 0.50% fat was in some cases sufficient to prevent a marked blue appearance.

The effect of the addition of water was to lower the amount of light reflected and decrease the relative luminosity.

SUMMARY AND CONCLUSIONS. — (1) The KEUFFER and ESSER color analyzer has been used to demonstrate the possibility of studying quantitative color variations in milk.

(2) The pasteurization temperature is probably the most important factor affecting the blue appearance of the skim layer in pasteurized milk. Temperatures between 143° and 145°F are effective in keeping the blue color to the minimum.

(3) Physiological disturbances in the cows may cause an increased tendency of the skim milk to appear blue

(4) Watering milk will give the skim milk a bluish appearance

(5) There is undoubtedly a relation between the feed consumed by the cow and the blue appearance of the skim milk although this fact has not been fully demonstrated and explained.

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Miscellanea.

INDUSTRIES OF PLANT PRODUCTS

SCIENTIFIC TESTS PROVE THE RICH VITAMIN CONTENT IN CANNED FRUIT. (MR. CALDWELL, A. G. Expert Manager, Food Machinery Corporation, San Francisco, California, U. S. A.).

Vitamin A. — Aids growth; strengthens resistance to colds and similar infections. Shown by food authorities to be present in: asparagus, carrots, cherries, peas,

pineapple, prunes, pumpkin, salmon, sauerkraut, spinach, strawberries, French beans, sweet potatoes, tomatoes, tomato juice.

Vitamin B.— Promotes nerve health and aids appetite. Shown by good authorities to be present in: apples, asparagus, beets, carrots, cherries, maize, grapefruit, Lima beans, peaches, peas, pineapple, prunes, raisins, salmon, sauerkraut, spinach, strawberries, French beans, sweet potatoes, tomatoes, tomato juice.

Vitamin C.— Prevents scurvy; most easily destroyed of all vitamins. Shown by food authorities to be present in: apples, carrots, maize, grapefruit, Lima beans, peaches, peas, pineapples, pumpkin, raspberries, sauerkraut, spinach, strawberries, French beans, sweet potatoes, tomatoes, tomato juice.

Vitamin D.— Aids bone growth; prevents rickets. Especially important in child feeding. Particularly good sources of this vitamin are: canned fish, salmon, sardines and tunny.

(*The Fruit World of Australia*, Victoria, No. 5, 1932).

PREPARATION OF "CATSUP" BY THE ENGLISH METHOD.— The preparation of the piquant tomato sauce called "Catsup", for which there is a great demand on the market, was for a long time a commercial secret. The purée obtained from fresh selected tomatoes and passed through a fine sieve (0.45 mm mesh), is concentrated *in vacuo* and mixed with water (50 parts), vinegar (20 parts), sugar (25 parts) and 5 parts of salt. Garlic, shallots and celery are added, and as spices mustard, pepper, cloves, cinnamon, mace, coriander and cardamoms. The addition of dried pectin (2–5 %), previously moistened with alcohol and passed through a sieve with a little water, is recommended. The bottles when filled with "Catsup" are pasteurised at 70–75° for half an hour.

(*L'Industrie Française de la Conserve*, Paris, 1932, No. 81).

IVTH COMPETITION FOR AN OLIVE-HARVESTING MACHINE.— The Office of Agricultural Experimentation and Propaganda in Tunisia is organising a competition for mechanical olive-gathering contrivances, to take place at Sfax, Tunisia, on 16 and 17 December 1933. There will be only one section, that for large scale machines worked by motor and capable of harvesting the whole crop after passing over the trees once or twice according to the ripening periods. The machines must be automobile or tractor drawn. Competitors should aim at fulfilling the following requirements:—

- (1) possibility of harvesting rapidly and cheaply with few and unskilled labourers (2 or 3);
- (2) absolute necessity of not damaging or tearing off the next year's fruiting twigs;
- (3) facility of harvesting sound, clean fruit.

The cost of the machines, their depreciation, their facility of manipulation, their ingenuity and the rapidity with which they can be repaired, will influence the decision of the judges as well as their successful working. The prizes may be competed for only by machines constructed and equipped with a view to use in the normal olive plantations of Southern Tunisia.

In addition to the machines having the preceding characteristics the Office reserves the right to exhibit and submit to the judges more simple appliances having new practical devices for mechanical harvesting of olives, the principle of which might be applied to large-scale motor worked machines. Such appliances may receive a special prize for commendation but may not compete with the machines entered for the competition.

The competition is open to engineers, builders, representatives of farm machinery firms and any other person without distinction of nationality or residence.

Applications for entry should be addressed to the President of the " Office de l'Expérimentation et de la Vulgarisation agricoles " (Direction générale de l'Agriculture) at Tunis, and should reach the Office before 15 November 1933.

The Office invites the attention of persons interested to the special characteristics of the olive culture in the region of Sfax, where the next competition is to be held.

This region is made up of plains separated by low hills. With the exception of the calcareous coastal district and certain sandy clay beds the region is entirely composed of a deep sandy soil.

The olives are planted in rows and generally in squares of 20 to 25 metres in size. The trees are regularly pruned and reach large dimensions. The main trunk branches at an average height of 1 metre and bears obliquely forking branches. The foliage of the young trees (under 25 years) is spherical in form.

Pruning is effected twice a year—after the crop is gathered and in April before the opening of the flowers. In the Sfax district pruning is made to encourage a pendent growth as the hanging branches yield most fruit. The lower branches sometimes hide the base of the main forks and a great part of the trunk. The trees are cylindrical in shape, the mean diameter being 6.50 m and the total height varying from 4 to 5 metres according to the age of the tree.

The fruit (Chemlali variety) is oval, small and a glossy black when ripe.

The mean production of a fully grown tree varies from 40 to 160 litres, but in favourable years may reach 400 litres.

The olive harvest generally begins during November; it varies according to the amount of fruit and the labour available (average, 70 days). Picking is effected by combing the branches with sheep's horns. The fruit is never knocked down in this region for fear of damaging the young branches. The olives are picked over cloths and then cleaned and weighed.

The measures used for olives are:—

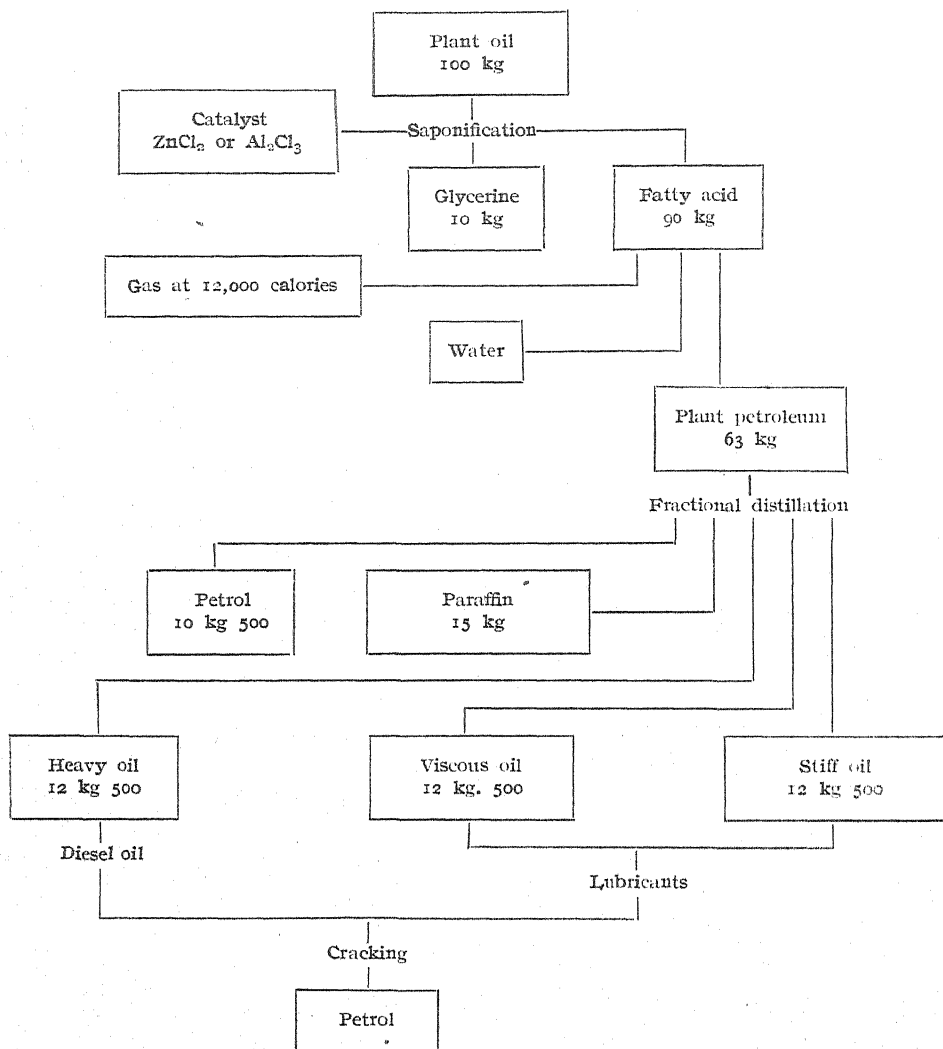
The cafis	640 litres, weight 430-450 kg
The ouiba	40 litres, weight 26-28 kg

CARBURANTS FROM PLANT OILS. — The ever increasing demand for carburants has led not only to the widespread use of pyrogenation of heavy mineral oils and the residues obtained by treating various materials extracted from petrol-yielding deposits or other materials such as bituminous limestones and schists, lignites, gas tar, etc.; in 1923 A. MAIHLE conceived the idea of utilising animal fats and vegetable oils, particularly those which are spoiled and consequently of greatly reduced value, by transforming them into carburants. By submitting plant oils to a temperature of 600° C in the presence of dehydrating and dehydrogenising catalysts, he obtained by pyrogenation at normal pressure, in addition to a rich gas and other products, a considerable quantity of liquid products with low boiling point. He observed also that by treating these oils at 240°-280° C in the presence of zinc chloride, there was obtained, as well as the burning oil and vaseline, a heavy oil similar to mineral oils with a boiling point between 290° and 320° C.

J. ARNOUX observes that with the progress of research and the improved processes, it is now possible to obtain in a single operation considerable quantities of synthetic petrol and gas yielding 12,000-13,000 calories, without destroying the glycerine which is a valuable bi-product. This is produced by heating the fatty acid obtained

from the oil after saponification with 5 to 10 % of a metallic chloride (zinc or aluminium). By this means the cost of transformation is considerably reduced.

The following is a scheme for treatment of palm oil.



The results obtained up to the present seem to indicate a ready market for these oils, particularly crude and spoiled oils, by converting them into carburants in countries lacking petrol-yielding deposits, where special difficulties make the transport costs high for imported carburants and exported oils, and in some cases so high as to be prohibitive.

(CAMERANA E., *L'Industria chimica*, Roma 1932, n. 5.).

G. S.

INDUSTRIES OF ANIMAL PRODUCTS.

DRYING OF SOUR MILK. — Drying of sour milk presents a number of practical difficulties, for example it adheres to the walls of the cylinders of the desiccator and turns brown. W. MOHR and M. SCHULTZ have shown (*Molkerei-Zeitung*, 1931, No. 114) that to obtain a white product the following points must be observed:— (1) avoid excessive temperature by heating only with steam at low pressure (2–3 kg par sq. cm); (2) lower the level of the milk in the cylinders as far as possible and use agitators which will not cause separation of the casein; (3) avoid as far as possible the formation of film and any film removed falling on to the cylinder; (4) concentrate the milk beforehand.

Ed. note. — The concentration of milk, whey, buttermilk, etc. *in vacuo* at 25°–30° in stainless steel concentrators at constant pressure (1) carried to the maximum possible without alteration of the product, and desiccation on cylinders or better by pulverisation in an inert gas (preferably nitrogen) have given very good results and allow of obtaining a product which is satisfactory from all points of view (colour, digestibility, etc.).

PREPARATION OF FISH PASTES. — Very different results may be obtained with the same recipe for making fish paste according to the fish used and the conditions of manufacture. The principal constituent of this kind of product is tinned salmon. A certain proportion of fresh fish, such as herring, is sometimes added. Cod gives a paste which is too dry. The next ingredient in order of importance is fat, the purpose of which is to make the paste more easily spread. Beef fat is generally used or lard in the United States; butter gives no marked improvement in flavour. Most pastes contain also starchy matter (rice, biscuit meal) which stiffens the paste and absorbs excessive moisture. The flavouring is important and must be to the taste of the consumer. A good basic flavour is given by adding anchovy or lobster.

In shellfish pastes lobster, crab or crayfish are used. The choice flavour of shrimp is given by shrimp extract or salted shrimps. For seasoning salt, pimento, mace, coriander, etc. are used.

The best colouring materials to use are the rhodamines, owing to their power of resisting heat and light (glass receptacles). After passing through the milling machine the pastes are put into jars and sterilised for 30 minutes at 120° C.

(*L'Industrie Française de la Conserve*, Paris 1932, No. 81).

G. S.

THE FIRST PLANT FOR THE PRODUCTION OF FROZEN LIQUID EGGS IN EUROPE. — Owing to the unfavourable market situation for eggs, there has just been set up in Europe, a factory of this kind at Noua Sulita (Rumania) and has, in part, been financed by the aid of German capital. The first production has already been placed on the European market and has met with a good demand.

(*Eierbörse* 1932, No. 25, p. 397).

E. M.

(1) See this Bulletin, 1932, No. 1, pp. 20–22 T.

AGRICULTURAL EDUCATION

Miscellanea.

AGRICULTURAL EDUCATION IN SWITZERLAND. — From an article by A. GROS in the *Journal d'Agriculture pratique* of 5 November 1932 the following information is extracted : —

Higher education is given by the agricultural section of the *École Polytechnique Fédérale* of Zurich, a school celebrated throughout Europe for the standard of its teaching.

The degree of *ingénieur agronome* which is given at the end of the course gives the same rights as the degrees obtained in other sections of the Polytechnic (in engineering, chemistry, etc.), particularly as regards the obtaining of the doctorate in technical sciences. It is needless to insist on the beneficial effect of such measures on the recruitment of the Government agricultural division.

It is especially in the organization of the middle grade of agricultural education that the originality of the Swiss system lies.

Switzerland being a Confederation of twenty five cantons enjoying a large degree of freedom within the limits of the federal constitution, each canton may have its own legislation dealing with agricultural education. In fact, a great diversity is apparent. In some cantons agricultural education is attached to the department of education, in others to that of agriculture. In every case the Confederation intervenes financially, taking over half the expenses of instruction. The widest degree of initiative is left to the cantons in the regulation of teaching and in agricultural propaganda within their territory.

A striking fact also is the relatively large number of schools of agriculture in Switzerland. In a country less than one tenth the size of France there are thirty-five schools of agriculture, belonging to two different types.

(1) *Theoretical and practical schools*, numbering four and corresponding to the French schools of practical agriculture. The duration of studies is two years.

These schools have not the support of farmers and find difficulty in obtaining pupils. The latter are rarely the sons of farmers. Switzerland is a country of smallholders. The head of the family requires his children to work on the farm and cannot do without them for two years in succession. As, on the other hand, the Swiss peasant believes in his children having a sound agricultural education, the success of the schools of the second type will be understood.

(2) *The winter theoretical schools*, which correspond to the French winter agricultural schools. These have developed rapidly and are greatly favoured by agricultural workers.

As in the French schools, the period of study extends over two consecutive winters, from November to April. There are in existence thirty-one winter agricultural schools, one in each canton, except in the larger cantons, which may have several.

The area from which pupils are drawn is sometimes very restricted. Thus, the Schaffouse canton, the smallest in Switzerland, except for that of Zug, despite its largely industrial population, has a magnificently equipped agricultural school.

In Switzerland, the winter schools do not form part of other educational establishments. They have their own buildings and are for the most part comfortably equipped, thanks to subsidies generously granted by the canton and the Confederation.

Efforts are made to obtain an adjoining plot of land on which demonstrations may be made for the instruction of the pupils and farm workers.

The instruction given at these winter schools is of a fairly high grade due to the minimum age fixed for students (seventeen years) and to the general knowledge they already possess.

The girls have not been forgotten in the organisation of agricultural education. There exist, in fact, seventeen schools for instruction on rural housekeeping which, for the most part, are attached to winter theoretical schools. The school of housekeeping is open during the summer for three to five months while the boys are absent. In this way, the facilities and organisation already in existence are fully utilised.

To the winter school of Schaffuse canton there is attached a housekeeping school kept open from May to September and the syllabus includes mainly housekeeping, dairying, gardening and poultry-rearing.

One of the characteristics of the Swiss winter schools is the very complete way in which they make their influence felt outside the actual school. The professors of agriculture, relieved by the canton staff of most of the administrative work, are able to devote themselves fully to propaganda and to professional organisation in their cantons. The pupils taught by them at the winter school form in each commune a nucleus of well-informed farm workers constituting a basis for effective activity.

This outside work is one of the main responsibilities of the lecturers of the agricultural schools. Their work is facilitated by the spirit shown by the people, who are eager to improve their methods according to the advice of the technical experts. The area of activity of these is moreover often very limited, permitting them to watch the progress of the farms very closely.

Further, the schools organise each year on their premises, special short courses, lasting one or more days, which are attended by the practical workers and housewives of all ages who do not hesitate to leave their occupations to attend the school.

These courses, lectures or demonstrations cover all agricultural or housekeeping subjects. For men, the Schaffuse agricultural school organised, in 1930, lectures on the care of livestock and milk, the manufacture of sweet cider, and aboriculture; for women, lectures on cooking and the art of arranging flowers.

Continuation agricultural instruction has reached a high stage of development for a long time past in Switzerland. It is imparted by specially trained teachers and by old pupils of the agricultural schools and completed by lectures by professors of the schools.

Continuation housekeeping instruction is very widespread and relates chiefly to housekeeping, care of children and family doctoring.

G. R.

AGRICULTURAL RESEARCH

AGRICULTURAL RESEARCH IN NORTH AMERICA. — The International Institute of Agriculture will publish shortly a directory of agricultural experiment stations in countries with temperate climates, on the same lines as that already issued for tropical countries. The work will contain information received from 45 countries relating to over 1200 Stations and Establishments concerned in agricultural experimentation.

The part dealing with North America contains systematically arranged particulars relating to 63 Experiment Stations in the United States (not counting the Sub-Stations) and 32 Stations in Canada. The adjoining maps show the exact situations of these Stations.

D. K.

A detailed black and white map of the United States, showing state boundaries, names, and major cities. The map is oriented with the Atlantic Ocean on the right and the Pacific Ocean on the left. State names are written in all caps within their respective borders. Major cities are marked with dots and labeled. The map includes Alaska and Hawaii, though they are not clearly labeled in this version.

States and Major Cities:

- Alaska:** Anchorage
- Hawaii:** Honolulu
- Washington:** Pullman, Puyallup
- Oregon:** Corvallis
- Idaho:** Moscow, Logan
- Montana:** Bozeman
- Dakota Nord:** Fargo
- Dakota Sud:** Brookings
- Wyoming:** Laramie
- Nebraska:** Lincoln, Manhattan
- Kansas:** Manhattan
- Oklahoma:** Still Water
- Texas:** College Station
- Missouri:** Columbia, Hannibal, Groves
- Illinois:** Urbana
- Indiana:** La Fayette
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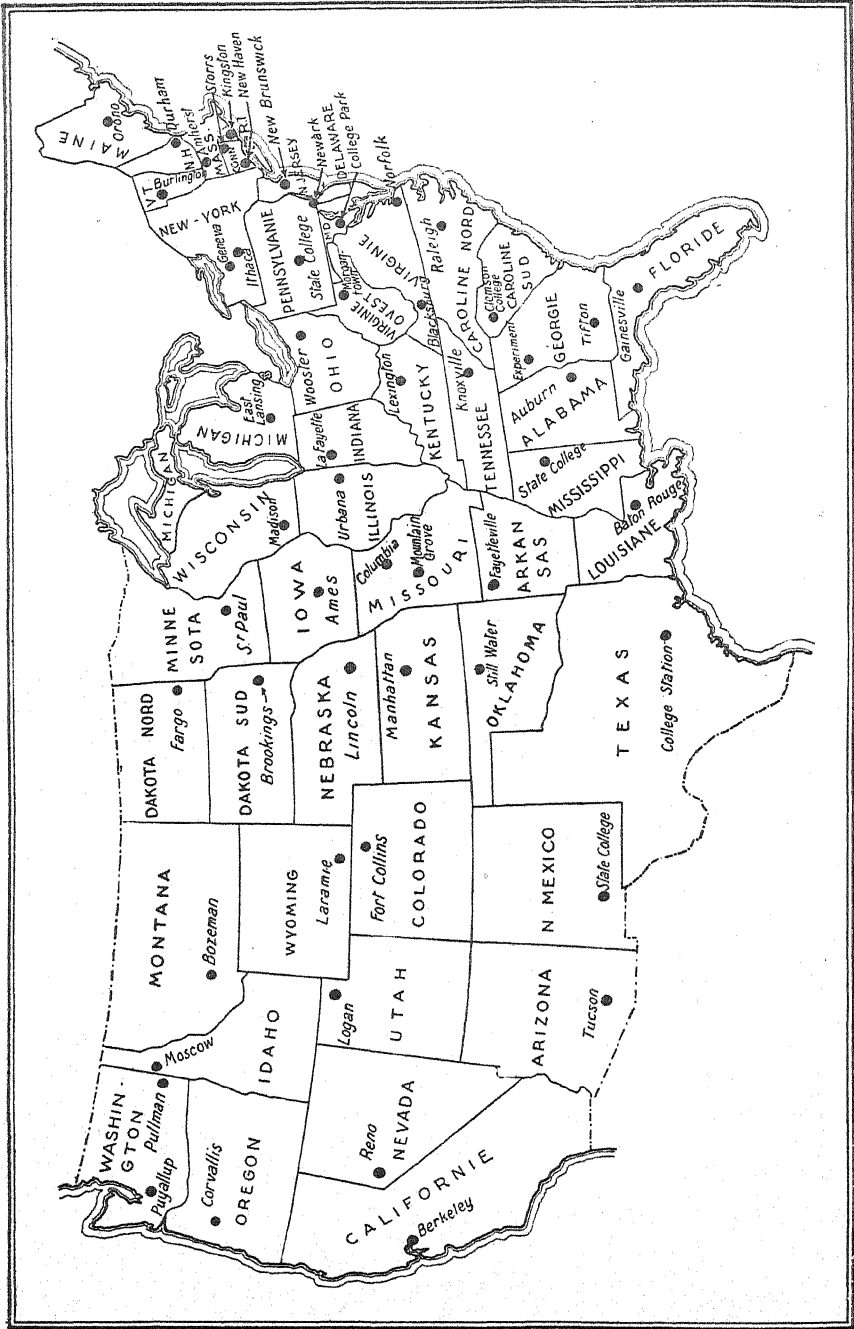
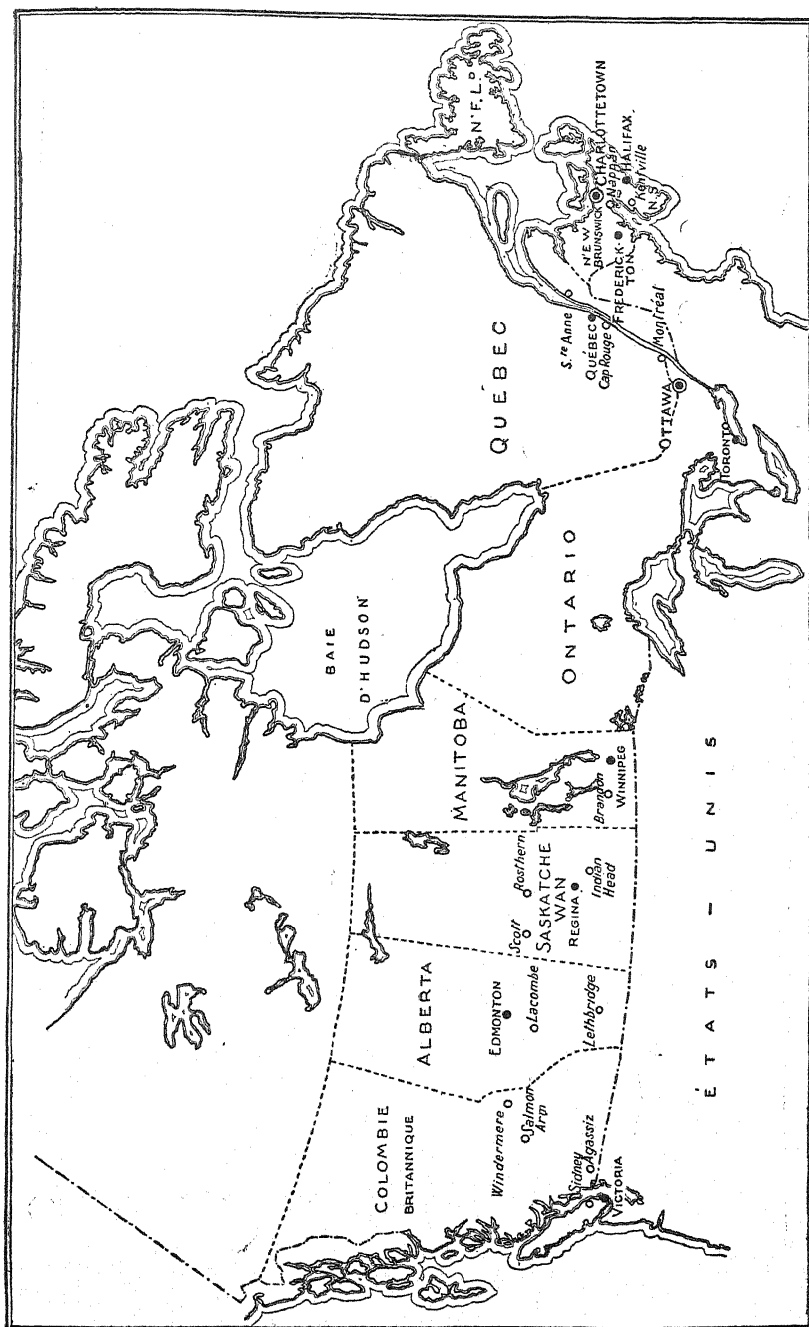


FIG. 2. — Experiment Stations in Canada



BOOK NOTICES *

Tropical Crops.

THÉRY René, *L'Indochine française*, pp. 220, 32 illustrations hors-texte, 3 cartes. Paris, 1931. « Les éditions pittoresques ».

[The author has endeavoured give a concise but complete and objective account of what French Indo-China is, what it means today and its potentialities. He has refrained, from the accumulation of statistical data, which are inappropriate to a popular work, but has provided a very full bibliography. The reader must admit that the object has been attained and that the author has succeeded in giving a precise description not only of the geographical features of the country but of the nature, characteristics, habits and distribution of its population. But we are here concerned particularly with Chapter seven, which is devoted to agricultural production.

Covering a wide extent from north to south and presenting marked differences of altitude, hydrographical régime, and climate and having many excellent soils, the Union is capable of covering a very wide gamut of production to meet not only internal needs for food supply and manufacturing purposes but a large and remunerative export trade.

Amongst the commodities produced one group is provided by the natives and the other by European enterprises. In native production *rice* plays the principal part. Carried on in all the States, its cultivation occupies the greater part of the rural population, covers an area of about six million hectares and gives an average annual production of 70 million quintals of paddy. Deducting the 45 millions necessary for internal consumption, four millions for seed and one million for distilling and other manufacturing uses, there remain 20 million quintals for export. The author describes in great detail the rice production of Indo-China, discussing the irrigation and drainage works and rice milling, which is one of the most important industries.

Of other cereals only *maize* has any considerable commercial importance. It is especially successful in Tonkin, where two crops a year are often obtained.

Crops grown for food consist almost exclusively of *sweet potatoes*, *kidney beans*, *arrowroot* and *yams*. In recent years great progress has been made, thanks to the assiduous technical advice of the French authorities, to the extension of irrigation facilities and to more systematic selection. The cultivation of seasonal *green vegetables* and of *temperate zone fruits* is being encouraged by the Government.

French Indo-China is a very large producer of *pepper*. Shipments abroad amount to over 4000 quintals a year and were valued at over 70 million francs in 1928. The cultivation of *cinnamon* by the natives of the southern States is of less importance.

The Government established in 1927 an experimental station for *cinchona* in Annam and it is planned to encourage this production with a view to lowering the price of the bark.

* Under this heading are included short synopses of books received for review.

The natives of Tonkin and Annam have since time immemorial gathered the leaves of wild *tea* bushes to meet their own needs; the product was, however, of very inferior quality and the yields always deplorably low. Subsequent to the War certain powerful French interests decided to establish tea plantations on the Java model. Initiated in 1924, these plantations will not really come into bearing until 1933. They are very satisfactory in appearance.

Coffee is cultivated by the natives in quantities adequate for their own needs and by French colonists in Tonkin and Annam. Over 15,000 hectares are under coffee, but scarcely one-quarter of this is in bearing.

The climate of French Indo-China is not particularly favourable to the fruit trees that flourish in other tropical countries. In Southern Annam, Cochin-China and Cambodia, however, *mangoes*, *grapefruit*, *bananas*, *areca palms* and even *oranges* are found.

Plantations of coconut are met with in Cochin-China and in several districts of Cambodia.

Castor covers extensive areas in Tonkin and Annam. In Tonkin *groundnuts* and *sesamum* are also grown. Efforts have been made to introduce the *oil-palm*.

Amongst other introduced crops various *perfume-producing plants* should also be mentioned. The first place is taken by *Illicium* or star anise. The preparation of *citronella* and *lemon grass* juice has increased rapidly. Distillation of the juice of *cuscuta*, of *cajuput* and of the wrongly called "*heath*" has also begun.

Plantation *rubber*, which in 1927-29 reached the second place amongst exports, was introduced by the French colonists. At the present time it covers about 60,000 hectares in the Union as a whole; of the 15 million trees only a little more than one third are in bearing. It is estimated that in fifteen years French Indo-China will be able almost completely to satisfy the demand of France, which is 400,000 to 450,000 quintals annually.

Sugar-cane plantations have met with serious difficulties. The finances of several enterprises have suffered as a result, but, thanks to the resolution of the capitalists concerned most of the obstacles have been surmounted. French Indo-China is still, however, far from meeting its own needs in sugar.

Textile plants are very numerous, but the exploitation of many of them (hemp, flax, ramie, aloes) has remained at a very primitive level. There is a more active trade in *kapok*. The exploitation of *jute*, in Tonkin and North-Annam, has for long been little developed but is now being extended under the pressure of growing needs.

Cotton grows wild in Cambodia and in several provinces of Cochin-China, Annam and even Tonkin. Well managed plantations have been established and ginneries perfected, and already part of the needs of the textile industry of the Colony are met within the territory while a small export trade to Hong-Kong and Japan has begun. Purchases of cotton and wool from abroad are, however, thrice as great as exports.

The native growers of *tobacco* sell their product to the *Régie* established by the French which has contributed greatly to the improvement of quality. The country remains, however, very deficient in this respect and a tendency to replace native tobacco with Algerian is reported.

The cultivation of *mulberry* and the rearing of *silkworms* are practised in French Indo-China but without attaining the importance that they have in China and Japan. Certainly the exports of *raw silk* are appreciable, varying from five to ten million

francs, but the imports of foreign silk tissues generally amount to over 140 million francs a season. The Government is trying, however, to develop production of the raw material.

The forests have been destroyed in the more accessible areas, either in the opening up of new lands for cultivation or by wasteful exploitation. There remain, however, about 31 million hectares under timber, the richest forests being in the mountain districts of Tonkin, Annam and especially Laos. These forests supply the Colony with all the timber it consumes for constructional purposes, joinery, cabinet work and fuel and provide the raw material for a number of prosperous industries (paper, furniture, matting, dyestuffs, etc).

French Indo-China cannot be regarded as a great livestock area, though poultry-farming is carried on on a large scale. At the present time the territory completely satisfies internal needs and exports annually live animals to the value of between 25 and 40 million francs, eggs and egg products to the value of between 25 and 70 million francs, raw hides to the value of 14 million francs and tanned and dressed hides to the value of 7.5 million francs. The author considers that these figures could be greatly increased].

W. B.

Animal Husbandry.

BOSMAN A. M., *Cattle Farming in South Africa*. Central News Agency Ltd. Pretoria, 1932. 458 pages, 36 illustrations.

[The present volume is interesting not only for the cattle farmer in South Africa, for whom it is a practical guide, but also for those desiring to know the conditions under which cattle farming is carried on in this country. In fact no comprehensive work has been published until now which would complete the existing literature on domestic animal geography by giving a picture of the cattle industry in South Africa. The first part of the book deals with the importance of both beef and dairy cattle breeding in the Union and with its limiting factors, of which the mineral deficiency of pasture land and rainfall are the most important. Density of cattle as well as the distribution of the most important breeds (Friesland, Shorthorn, Africander and South Devon) and their improvement are discussed. Parts II, III and IV will be of interest more particularly to the South African breeder for they contain the general principles of breeding, feeding, care and management, although these chapters include too some information of general interest about the environmental conditions of cattle in the different parts of the Union. A special chapter is devoted to the local breed, the Africander cattle, the probable origin and characteristics of which are briefly outlined. Many good photographs of cattle breeds, outline maps and diagrams illustrate this most interesting book].

S. T.

EHRLICH C., *Die wichtigsten Aufzuchtkrankheiten der landwirtschaftlichen Nutztiere*, pp. 286. Hildesheim (Verlag der Molkerei-Zeitung), 1932

[The immense losses due to sterility, abortion and diseases of young animals have produced a vast literature on these subjects. It is, however, very difficult for

the breeder and the agriculturist to obtain a general idea of these diseases from the numbers of specialist papers, written for the most part from a scientific point of view. For this reason the author of this treatise on the diseases met with in stock farming has thought it opportune to make a study of these diseases as a whole, in a manner readily comprehensible to the practical breeder and in the light of the most recent research. The material is classified for each species of domestic animal from a clinical point of view and the description of the various diseases takes into special consideration the desire of the practical breeder to understand the origin and development of the diseases, the pathological conditions to which they lead and the preventive and remedial measures that can be adopted. The author limits himself, however, to the principal diseases. In an appendix is given some advice regarding the sending of material to veterinary institutions for examination].

S. T.

WILL, A., *Die Kaninchenzucht der Gegenwart*, pp. 362, 270 figures, Munich 2 c. (F. C. Mayer Verlag), 1931.

[This manual of modern rabbit-breeding, resulting from the practical experience of the author, is meant for practical breeders. It should, as the author remarks in the preface, be a guide for beginners and a counsellor for the expert. A large part of the book is devoted to a study of breeds and guides the breeder in the choice of breeds for his particular purpose. The author then studies actual breeding and the various methods of feeding and general upkeep. After a brief general consideration of Mendelian laws the author occupies himself more particularly with heredity of coat-colour and length of fur and discusses mutation, modification and combination of factors, the breeding of pure lines and inbreeding. The volume contains in addition a chapter on rabbit diseases by Dr. Walter KARSCHAG].

S. T.

FORESTRY

Notices.

REVISED SCHEME OF FORESTRY WORK IN GREAT BRITAIN. — During the year ended 30 September 1931, decisions were taken, at the time when a regime of rigid economy had to be enforced in consequence of the general financial crisis, which must necessarily modify the scale and the character of the work of the Forestry Commission in Great Britain. These decisions coincided with the second year of the Commission's second decade, the working programme for which had contemplated the planting of 353,000 acres and the establishment of 3,000 forest workers holdings. The planting programme was to be on an expanding scale beginning with 25,000 acres in 1929 and rising to 44,000 acres in 1938, while the scheme for holdings was planned on a basis of 350 holdings annually for the first five years and 250 holdings annually during the second five-year period. The execution of the complete plan would have required the acquisition each year of 60,000 acres of plantable land and 2,500 acres of agricultural land.

For a variety of reasons it was not found possible to carry out in full the programme for the period 1929-30, but during the first half of the second year operations were speeded up in accordance with the original proposals. At this stage however the financial crisis supervened and necessarily affected the activities of the Commission.

The Forestry Commission gave evidence before the Committee on National Expenditure and subsequently submitted a new set of proposals. In the end, after full discussion as between the Commission, the Committee on National Expenditure and the Exchequer, a scheme was adopted for the coming five-year period. With the funds now made available, the Commission anticipates that it should be able to carry out the following plan of work: (1) Maintenance of a planting programme for upwards of 20,000 acres per annum — (2) Acquisition of sufficient plantable land to keep intact the reserve of land required for carrying out the planting programme — (3) Provision of an adequate number of forest workers' holdings (say, 15 to 20 annually) for efficient forest working, together with the upkeep and repairs of such holdings as may be necessary for the proper utilisation of unplantable land — (4) Award of grants for planting on the same scale as in the past three years — (5) Continuance of research work and provision of facilities for training in forestry and similar auxiliary activities.

Forestry on Private Estates. — As a result of the modification of forest policy on financial grounds, the Commissioners took independent advice as to the general situation of forests privately owned and also as to the extent of the necessity for State intervention. The three Consultative Committees of England, Scotland and Wales respectively were accordingly asked each to consider what further steps the Commissioners might take with advantage to encourage the production of timber by private owners and eventually a joint report on the position was presented of which the substance is given below.

According to this report, private forestry is not receiving as much attention as in the pre-war period in spite of increased technical knowledge and State encouragement. Since 1909 a series of measures has been taken by the State to promote forestry on private estates, including favourable changes in respect of death duties and preferential assessment for purposes of taxation, subsidies for planting and the derating of woodlands in England and Wales, Scottish woodlands having always been lightly treated in this respect. Although these concessions are substantial in themselves, it is by no means generally admitted that as a whole they are an effective set-off to the increase in post-war costs. The decline in private forestry is attributed to the general depression, to taxation and to the break-up of estates.

Lack of confidence in the future is the cause of a reluctance on the part of owners to invest capital in plantations owing to the practical impossibility of early realisation. At the same time the growing burden of taxation has increased the difficulty of finding money for new planting or even for replanting land recently cleared of profitable timber crops while estate staffs, owing to the higher rates of wages, have been reduced to minimum strength.

The subdivision of many large estates, where hitherto a planting policy had been adopted, has frequently brought in small proprietors who are by no means enthusiasts for afforestation or else speculators and others whose sole interests lie in timber exploitation.

In view of the paramount call for national economy and the consequent reduction in the funds available for the Commission, the signatories to the joint report found themselves unable to suggest any practical proposal for the solution of the general

problem. It may therefore become necessary in the long run for the State to relieve the private owner from responsibility for maintaining the woodlands of the Country and itself to take this work in hand before irreparable devastation takes place. It would be in the national interest for the Commissioners to take over forest areas on fair terms in those cases where, after all possible encouragement and State-aid has been offered, the owner finds himself still unable to replant.

(Based on the *Twelfth Annual Report of the Forestry Commissioners for the year ending September 30th, 1931*. London 1932, H. M. Stationery Office).

R. W.

CULTIVATION OF *Pinus Pinea* («PINONERO») IN URUGUAY. — At the present time certain special studies are being made in Uruguay with the object of improving the national agricultural output. Here reference may be made to the report of two experts, MM. P. MENÉNDEZ LEES and M. QUINTEROS (fils), on the cultivation of *Pinus Pinea* L. which was published in the *Revista de la Facultad de Agronomía*, Montevideo 1932, No. 6, pp. 181-194.

The conditions both of soils and climate (the former, rocky and sandy, the latter, temperate) are favourable for growing *P. Pinea* or stone pine to produce large crops of pine kernels. This species has shown itself tolerant to a high degree of the cutting away of the lateral branches and terminal shoots and this characteristic makes it particularly valuable in districts where risks of damage by wind and insects are common.

In Uruguay the stone pine starts to bear fruit five years after planting but full cone production does not begin till the 25th year. For purposes of propagation nursery seedlings are most generally used. Sowings should take place in Spring and the first pricking out should be made in the following Autumn. It is quite possible that direct sowings may be preferable if it is desired to establish high forests, but on the other hand, for kernel production, it is recommended that planting should be widely spaced with intervals of 4 square metres and plants used that have been specially grown in the nursery for four or five years with repeated pricking out and trimming of the tap-root. Planting should be made in pits, 0.7 × 0.7 metres wide and 0.6 metres deep. After planting, the young plants should be surrounded with grass covered turves so as to give protection against sun and drought until their proper development is assured. The practice of attaching the young pines to stakes so as to keep them upright is not to be recommended as it is a source of serious damage to the young bark. If however quite small slips are used in the first instance, plantations can be made in combination with other conifers though the stone pines should not be cut at the time of the earliest seedings.

In Uruguay the stone pine does not make rapid growth in the early years but at a later stage development is quite regular and it becomes a highly resistant tree.

In connection with the cultivation of stone pines in Uruguay, it has been ascertained that at the age of 30 years a production of an average of 30 kg. of ripe cones can be expected annually per tree and that 100 kilos contain from 310-315 cones, each giving 90-100 seeds, each seed weighing with the shell an average of 1 gm, the fresh unshelled kernel weighing on an average 0.21 gm. A hectare of stone pine forest containing 500 trees and in full yield supplies 15,000 kg. of cones producing 750 kg. of kernels.

The composition of these kernels, according to analyses carried out by Prof. M. DE MEDINA of the University of Montevideo is as follows:—

	Maximum	Minimum	Average
Water	10.78 %	5.44 %	7.30 %
Total dry matter.	94.56	89.22	92.70
Ash	5.42	2.61	4.16
Total organic matter	90.84	87.87	88.96
Total protein	36.22	23.22	29.56
Fat and other ether extracted substances	48.75	42.54	45.60
Cellulose.	3.01	0.63	1.64
Total saccharifiable matter	16.11	11.58	13.97

The by-products of the treatment of the cones give an excellent fuel, 100 kg., producing from 4,478 to 4,576 heat units, figures that approach very closely the number of heat units produced by the majority of native woods.

As the kernels, when retained in the husk, are fully able to preserve their flavour and nutritive value, it is highly important that they should be sold in this form. Thus they can be sold at a cheaper rate and kept till the cold season when best use can be made of their special energy producing characteristics.

The report concludes with a strong recommendation in favour of the cultivation of the stone pine in Uruguay, specially for the production of pine kernels which have to be imported into the country in order to satisfy national requirements.

S. C.

THE EUCALYPTUS IN THE AFFORESTATION OF WASTE LANDS. — In an article contributed to the Review entitled *Bonifica integrale* (Rome 1931, No. 10), Signor PAVARI states that the eucalyptus, like the poplar and the robinia or locust tree, is a member of that small group of forest trees, which by reason of their rapid growth are profitable for private owners. It is only however possible to grow eucalyptus on an industrial scale in regions where the winter climate is quite mild and frosts are of rare occurrence; furthermore the eucalyptus is unsuitable on soils with outcropping rocks like those of mountain slopes. As a rule the best lands for eucalyptus cultivation are those where orange trees, prickly pears, etc. flourish. In Sicily and southern Sardinia, it is possible to grow the eucalyptus at a height of 600-700 metres, while elsewhere in Italy it can only be grown on the plains or on the lower hill slopes,

On land reclamation areas the two main uses of eucalyptus trees are as wind-breaks and for industrial purposes.

The eucalyptus has been found of great value for forming wind-breaks in many parts of the world, for example in California, Tripolitania and Sardinia. The chief difficulty is the habit of the tree to extend its root system to neighbouring cultivated land but this tendency can be corrected by making, close to the wind screen,

a deep trench, filled with heavily manured soil in which the roots find abundant nourishment and become localised. Experiments carried out in Sardinia tend to show that eucalyptus wind-breaks in two rows have proved inadequate. Thus, in the lands at present under reclamation at Oristano (Sardinia), it is now customary to form screens from 30 to 90 metres wide, made up of several rows of trees at intervals of 3 metres, the plants being grown each at a distance of 2 metres from its neighbour. These screens, which are separated by intervals of from 100 to 200 metres from each other, form a system covering the whole area, which was formerly quite bare but is now, thanks to these wind screens, covered with vines and various crops. It has been found that, as in Tripolitania, the most resistant species are *Eucalyptus rostrata* and *E. resinifera*.

If the variety is well selected and scientifically cultivated, the eucalyptus is proof against the most extreme drought, shows a vigorous and straight growth and makes excellent use of the subterranean water table. In addition to the many proofs of resistance provided by experience in Spain, a further example has recently been provided at Montimannu in Sardinia where the State Forest Service has planted the bed of a torrent with eucalyptus, in partial combination with Australian acacia, for an area of upwards of 25 hectares. Here in a few years time a thick forest has been formed on land that was formerly quite useless.

A careful examination of areas in the south which call for reclamation would show that in many cases afforestation with eucalyptus would give better results than farm crops; this is particularly the case for example for soils with strong acid reaction, for very heavy soils and for shallow soils with a gravelly sub-soil. The eucalyptus can also serve a useful purpose where drainage is required as it is a large consumer of water. It would appear from results already obtained that the difficult problem of afforestation on clay and heavy soils can be solved by adopting *E. rostrata*.

The writer quotes a number of examples derived from the experience of Italy to indicate the value of the eucalyptus as a timber producer. For instance the cultivation of *E. globulus* at the « Tre Fontane » (near Rome) gave the following results: high forest 28 years old with 2,000 trees per hectare; average height, 29.5 metres; volume of timber 1,209 cubic metres per hectare — 14-year old coppice with 1,250 shoots per hectare: average height, 19.5 metres; volume of timber, 360.75 cubic metres. At Uta in Sardinia, plantations of 11-year old eucalyptus, grown at intervals of 2.4×2.4 metres, are 18.5 metres high with a timber volume of 1,110 cubic metres per hectare. In a third area a 7-year old plantation shows an average height of 12.5 metres, an average diameter of 18 centimetres and a timber volume of 794 cubic metres per hectare. Results such as these can however only be obtained on deep, fresh soils where there is adequate protection from the wind.

The wood produced by the eucalyptus can be used in a variety of ways, e. g., as firewood (it may be observed that *E. globulus* gives 4,353 heat units per kg.), as timber for agricultural purposes such as planking and various forms of equipment, vine props, stakes, etc., the best varieties for such use being *E. rostrata*, *E. resinifera*, *E. gomphocephala*, as also for pit props and beams. For the last named purpose experience shews that the timber produced by *E. resinifera*, *E. corynocalyx*, *E. tereticornis* and also *E. rostrata* are the best adapted, when durability is fully developed, i. e. at the age of at least 25-30 years.

As sowing is generally the only method of propagation, the writers have been at pains to show that the initial expenses of eucalyptus cultivation are considerable. The soil requires deep ploughing and careful manuring and cultivation methods, in view

of the delicacy of the young plants, call for special care and are somewhat costly on the technical side. At the same time a eucalyptus stump makes good coppice and the trees originating as stock shoots grow much more quickly than those grown from seed. Thus, if firewood production is desired, eucalyptus coppice can be used to great advantage.

R. W.

THE TAPPING INDUSTRY IN FRANCE AND IN THE UNITED STATES. — CHAMBRELENT, the French Engineer showed in 1927 that it was possible by means of a careful system of levellings to reclaim a vast area covering 800,000 hectares of marshy and unproductive land which at that time lay to the South of Bordeaux and extended to the coast, and he was of opinion that after draining this area could be afforested. In the course of a few years CHAMBRELENT with his own resources succeeded in establishing 500 acres of excellent maritime pine plantations in the district and thereafter the State, the communes and a number of private individuals became greatly interested in the scheme. The law of 19 July 1857 made it compulsory for the communes to afforest their waste lands and where the communes were too poor to undertake the work, the State took charge. During the relatively brief period of twenty years (from 1857 to 1877) 600,000 hectares were thus drained and afforested. At the end of 1926 the total area of artificially produced forest land in the Landes amounted to 862,000 acres. On this area 781,000 hectares were devoted to maritime pine forest, supplying a large quantity of resin, in addition to an annual timber yield of 6 cubic metres per hectare.

Thus, both on the social and financial side, the reclamation scheme for which CHAMBRELENT was originally responsible has proved successful to a high degree. Whereas, before the area was drained and afforested, the scanty and sickly population was only able to maintain a precarious existence by sheep farming, there is now to be found a greatly increased number of inhabitants in the enjoyment of sound health and financially in better condition than their fellow citizens in the majority of the other districts of France. At the same time investments have given interest at the rate of seven per cent. This financial success is mainly due to the production of resin, of which there is an annual yield estimated at 75 million kg. together with 25 million kg. of turpentine essence. The resin yield of the area gives France a predominant place in the European markets of these products.

In certain districts in the United States, the production of resin is even more important than in France. Exports of resin alone amount each year to a total of about 3 million kg., and the annual export of turpentine oil reaches a total of just under 68 million kg. At the same time the demand for turpentine oil, as also the prices, during recent years have risen considerably, whereas the contrary has been the case as regards cork and tan. On the New York market the average price for a gallon of turpentine oil was in the period 1891-95, 0.32 dollars and in the period 1921-25, 0.99 dollars. During the same period, the prices for a barrel of resin were respectively 1.38 and 6.92 dollars.

(Based on an article by Prof. HOWARD GRON entitled « Skovbrugets Biproducter » (Forest by-products) published in *Hedeselskabets Tidsskrift* (Viborg, 1932, No. 16) and forming part of a series of monographs by the same author under the title of « Hvad nytte er skoven til? » (« What is the use of a forest? »).

INCREASE IN THE UTILISATION OF TIMBER IN SWITZERLAND. — The « Federal Foundation for the Advancement of the Natural Economy through Scientific Research », according to M. H. BADOUX, writing in the *Journal Forestier Suisse* (Berne 1932, No. 8)

has on several occasions given its assistance to forestry work by making grants in aid of research in connection with the production of various kinds of timber, their scientific utilisation, the making of wood charcoal, etc.

This Foundation has given a fresh example of its special interest in the scientific and technical aspects of forestry by allocating 25,000 francs for grants on behalf of research work in this field. One of these grants is in favour of the experimental work of the « Lignum » Society in connection with the utilisation of timber for house building, another is for enquiries regarding the best types of timber for general building construction, while a third grant has been assigned to the Society that has been established for the study of natural fuels.

R. W.

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[The writer, who was Director of the Danish Forestry Research Station and President of the International Commission, died in November 1931. The loss to Danish and international forestry science is deeply felt and has caused wide spread sorrow among his many forester friends in all countries. Some of his own colleagues and collaborators, notably Prof. BORNEBUSCH, have undertaken the responsibility for finishing off and publishing this study which was very nearly completed at the time of Director OPPERMANN's death.

During the period 1892-1907 the writer had in numerous class and public lectures and also in publications discussed the heredity aspects of forest trees. In 1909 the Danish Station for Forestry Research undertook a series of special studies relating to the conformation of the oak trees in the forests of Denmark and these studies and experiments carried on during the last 20 years are described in the present work, together with the results obtained, the latter in their bearing on forestry practice.

The book is divided into twelve chapters, of which the first is of an introductory character. The treatment of the different types of oak to be found in Denmark begins with Chapter II (*Our natural oak forests*) and it is shewn that the great forests of natural oak, which used to be a feature of the country have now been reduced to almost insignificant proportions. Chapter III (*Oaks dispersed through the beech forests*) indicates that in the course of the last 50 years the number of these scattered trees has diminished, as the foresters have only spared those of aesthetic or historic value such as some of the famous thousand-year old specimens. The IVth Chapter (*The Jutland oak groves*) contains a special study, based on historical research, of the trees and other types of vegetation to be found on the heath lands in this region, in which some very interesting conclusions are given on the local geology and on the displacements and internal struggles as between different species that have taken place during a long series of centuries. In his Vth Chapter the writer deals with the special types of oaks on the

(*) Under this heading are included short synopses of books received for review.

Small forest allotments belonging to the peasant class which show evidence of careful conservation and utilisation so far as circumstances have allowed.

In Chapter VI (*Oak forests established by artificial methods*), the author treats this kind of forest from the point of view of age, starting with high forest dating from about A. D. 1700. *Special characteristic forms of oaks* such as the weeping oak and the pyramid oak which are to be found from time to time intermingled with the ordinary specimens are discussed in Chapter VII. Chapter VIII is devoted to the *Oak sowing experiments* which were begun in Denmark in 1911. These trials, 90 in number, were made with acorns supplied from different parts of the country and also from other countries and it may here be stated that, up to the present, the amount of material available is insufficient to allow any really profound study of the law of heredity and that further trials are necessary for this purpose. In the IXth Chapter the question of *Environment and tree conformation* is discussed. It should be borne in mind that form is determined, not merely by natural but also by external conditions, including light, effects of wind, the subsoil water, the action of game animals and birds, etc.

After a brief study in Chapter X of the *Sessile and Pedunculate Oaks*, the writer devotes Chapter XI to a *Historical sketch* of oak cultivation in Denmark throughout the ages and brings out clearly the attitude towards forests and forestry at different epochs. This chapter includes an account of the geological features of Denmark and of the effects of climatic changes on forest development, as also certain recommendations as to the choice of mother-trees, etc. The last Chapter is called *Practical Applications* and contains the writer's conclusions based on his experimental work and observations as to the degree to which practical forestry work should take account of the hereditary characteristics of the various varieties of the oak.

This handsome volume, which is fully illustrated and supplied with a brief summary in French, represents the final product of the life work of a great scientist who was one of the great figures in the world of forestry. The work furnishes abundant evidence of the rare capacity for the patient study of countless details, serving to illuminate our understanding of the life history and of the conformation of trees, which was one of the outstanding features in the character of a truly eminent savant.

R. W.

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MONTHLY BULLETIN

OF

AGRICULTURAL SCIENCE AND PRACTICE

GENERAL AGRONOMY AND CROPS OF TEMPERATE REGIONS

The Progress in Classification of Varieties of Olives in different Countries.

It may be recalled here that in 1927 the Commission for Arboriculture (Section "Varieties of Olive Trees") of the International Scientific Agricultural Council of the International Institute of Agriculture proposed a programme (see *International Review of Agriculture*, 1928, No. 6, pp. 536-537) (*) for the systematic study of varieties of olive trees in all countries concerned in olive growing.

The IXth International Olive Growing Congress which was held at Tunis, Sousse and Sfax from 26 October to 8 November 1928 passed the following resolution :—

(1) That in order to give effect to the first resolution of the C. I. S. A. each country should proceed to the determination of its specific varieties of olives in accordance with the terms of the model schedule and inform the International Institute of Agriculture as early as possible, either by separate notifications as these varieties are scheduled or by a completed list.

(2) That experimental olive plantations should be established in each country without delay, with due regard to environmental conditions.

(3) That the national Commissions referred to under No. 3 of the recommendations of the International Olive Growing Congress of Rome (1926) should be elected at as early a date as possible for each country.

(4) That the chiefs of the official delegations of the countries represented at the IXth Congress should bring the matter before their respective Governments either directly or by means of their official reports in order to expedite the election of these Commissions. Similar action should be taken with regard to the national olive growing societies. (Resolution of Mr. Bilbao).

(5) That there should be a general agreement regarding the establishment of a centre of genetical research on the olive of an international character with investigators representing each country concerned.

In consequence of having received a number of communications on the subject the International Institute of Agriculture sent a letter on 28 Septembre 1931 to all the countries likely to be interested, concerning among other matters the following question :—

That it would be of value to the Olive Congress of Avignon (1931) if each Delegate from an olive producing country should communicate a report on any practical results obtained in his country regarding:

(a) studies on olive varieties on the basis of the schedule ;

(*) See also *International Rev. of Agriculture*, 1928, No. 12, p. 1039.

(b) institution of experimental olive plantations in connexion with the Experiment Institutions;

(c) institution of a National Commission in contact with the regional agricultural institutions, to be responsible in each country for the organisation of the studies in question.

Replies from the Governments of Italy, Algeria, Palestine and Egypt have now reached the Institute.

The study of the olive varieties in Spain is under the direction of the well known olive specialist, M. J. Manuel PRIEGO, in collaboration with the Director of the Experimental Farms of Cordoba y Jaén and the Olive Growing Station of Lucena.

In the October (1932) number of the review *Olivos* M. J. M. PRIEGO publishes a résumé of the work that has been accomplished.

He states in the first place that as a result of the experience gained it has been found possible to modify the rules drawn up by the International Scientific Agricultural Council of the International Institute of Agriculture. Thus, for example, the number of biometrical determinations to be made in each case has been reduced to 25, which greatly simplifies and facilitates the work. In doubtful cases only is the number of measurements of leaves, fruits and stones increased to 50.

On the other hand, for the greater number of varieties studied, specimens from different localities and environment have been examined. The total number of measurements made generally exceeds that given and the accuracy of the data is assured.

Another modification concerns the study of the kernel. Measurement of the diameter of the kernel did not give practical results; the difficulty of the work was rather found conducive to error. The appearance, more or less bitter flavour, volume and absolute and relative weight of the kernel constitute more certain bases for recognising varietal differences, together with the characteristics of the external organs (leaves, fruits, stones).

In the study of leaves, on the other hand, it was found necessary to increase the precision and definition of certain points in the official rules, owing to the fact that position and age influence the characteristics to be determined, such as the consistence and thickness of the veins and the quantity of wax covering the midrib of the leaf. It is therefore necessary to define from what branch and from what position on the branch the leaves for measurement are to be taken. For this purpose the method commonly used is to choose the terminal twigs of the branches which are situated in the centre of the southern side of the tree, and the leaves from the middle of these terminal twigs, eliminating any that are obviously abnormal.

To determine the dimensions the lamina of the leaf is laid on squared paper marked in millimetres.

The best moment for the examination and measurement of the fruits is considered to be when they are perfectly ripe. The fruit combines at this time the best conditions for determining its weight, volume and diameter. The stones taken from the fruits after measurement must also be studied, including the number of markings.

Experience has shown that with these modifications the work presents no difficulty. The complication which might be thought to be involved in the determination of the fluctuation of the characteristics in consequence of the influence of the physical and cultural environment is only apparent, for the measurements will be determined *a posteriori* for the different varieties in different regions and years.

The general method may be submitted to further modification in details. Thus, for example, in the determination of the height of the trees it is not always easy to have available a special tree measuring instrument or to make use of indirect methods. It is considered that the terms *large*, *medium* and *small* are sufficient for the purpose.

M. PRIEGO writes further that certain problematical cases such as the relationship of the variety 'Hojiblanco' of Aguilar, Montilla and Lucena to *Olea argentata* of Clemente, have been solved by definite separation of the varieties. The similarity of the characteristics in varieties geographically distant, such as the 'Negral' of Aragon and the 'Jardua' of Cabra, has led to the combination of the varieties after determination of the similarity also of their morphological characteristics. Similarly the variety 'Imperial' of Cordoba and the 'Bodocal' of Jalon have been combined under one scientific name.

The work was carried out in Andalusia, the region which supplies 50 % of the Spanish oil production, and will soon include other regions.

In his article M. PRIEGO makes no mention of the formation of experimental olive plantations nor of the nomination of the National Commission referred to in paragraphs 2 and 3 of the resolutions of the Congress of Tunis.

ITALY. — The Ministry of Agriculture and Forests states that provision has been made for:—

- (a) the formation of a Commission for the study of olive varieties;
- (b) the institution of or development of trial plots of olives in some cases already in existence.

The Commission was formed in agreement with the National Olive Growers' Association, which received the necessary financial assistance from the Government. The Commission comprises the Directors of the Institutions and Stations concerned in the study and application of all questions connected with the olive industry.

The Commission has not carried out its studies on the basis of the schedule approved by the International Olive Congress of Tunis, but on a more practical scheme designed to determine the best varieties for each typical olive growing zone and to investigate these varieties and their products in such a way that practical advice on planting and diffusion might be given.

The oils from these varieties were studied and compared with those obtained in the best factories of the same zone and in the districts where the variety tested is the commonest variety grown, so as to determine the characteristics of the typical oils and to improve the production of the regions of the mainland and island which are best suited to olive growing.

These varieties were also studied in respect to their resistance to adverse environmental conditions and to plant and animal parasites. Similar studies were effected also for the varieties yielding olives used in the pickling industry.

The study of the varieties in accordance with the schedule drawn up by the 'Olive Culture' Section of the C. I. S. A. of the International Institute of Agriculture has not yet been begun owing to the expenditure of time and money it would entail, particularly in the determination of the botanical characteristics. The Commission appointed by the Italian Ministry is concerned more particularly in the study of the 2nd and 3rd parts of the schedule, and the varieties have been studied mainly from cultural, industrial and commercial standpoints.

The institution or development of trial plots has been effected at the Experimental Olive Growing Institutes of Spoleto and Imperia and in the Experimental Plantations of the Royal Schools specialised in olive growing at Pescia (Pistoia) and Lecce.

Important studies have also been started in the Experimental Stations and Institutions, but the results obtained up to the present cannot be regarded as conclusive.

ALGERIA. — The Government General of Algeria has sent to the Institute the report drawn up by the Agricultural Adviser, M. J. BRICHET, which was presented to the Xth International Olive Congress at Avignon. This is summarised below.

The establishment of a list of the best varieties of olives with the botanic, cultural and economic characteristics which make it possible to distinguish them and to classify them according to their respective qualities, is a necessity which becomes increasingly apparent.

M. COUPIN, Professor at the Colonial Agricultural School at Tunis, emphasised the importance of this question in the report he presented to the VIIth International Olive Congress held at Seville as early as 1924. The carrying out of the work in question is an enormous undertaking and necessitates means which are not available to all the workers called upon to participate in it. The study of olive varieties does not present the same difficulties in all countries and is not equally complicated everywhere. It is easier in Italy, France, Spain and America on account of the selection which has been operating for centuries already and has gradually eliminated the varieties less well adapted to the cultivation methods and other exigencies of the environment.

Moreover in these countries there have already existed for some time Experimental Stations concerned with olive problems which are organised on modern lines and are highly useful in supplying information, particularly with regard to the selection of varieties for particular districts. These Stations alone are in a position to undertake the research entailed in establishing a list of the innumerable varieties of olives grown in North Africa and in Algeria in particular. The system of nomenclature that has already been drawn up by scientists required a large amount of research and observation, as a result of which an

attempt has been made to circumscribe the varieties, sometimes very numerous, which resemble each other at least in their external features, and to group them under the names of Feneya, Azeradj, Bouchak, Limli, Aberkan, Chemlali, Roussette, Olive of Boghni, of Gastu, of Tlemcen, of the Tell, etc., names which correspond to types rather than to definite varieties. The comparative study of the olives in each group has not yet been carried out, nor have genetical studies by selection, cross-breeding and hybridisation been made.

It is necessary also to realise that at least $\frac{3}{4}$ of the olive growing in Algeria is in the hands of natives who are entirely indifferent to or incapable of taking part in any study whatever, which adds to the difficulty and tedium of the work outside specially organised establishments. In the hope of remedying this state of affairs Dr. L. TRABUT, Ex-Director of the Botanical Service, installed at the Agricultural Institute of Maison-Carrée a collection of Algerian varieties for study purposes, but unhappily the nature of the soil was unsuitable and the trees failed to take hold.

At the present time the Government General of Algeria is actively concerned in the institution of an olive experiment station at Bougie, which is in a good agricultural region; the station is to be used for the comparative study, selection and propagation of the best varieties of olives. Propagation by grafting on the original trees has been the subject of a special study in conformity with the resolutions of the VIIIth International Olive Congress held in Rome in 1926.

At the same time with a view to isolating varieties with clearly defined characteristics which can definitely figure on the list, or which require study for any reason, a collection was started five years ago of specimens of the most interesting Algerian, French and foreign types. There are already about 40 of these types; Aberkane, Besbessi, Bouchok, Blanche d'Aknou, Blanche de Guelma, Belle de Maillot (seedling), Chemball de Kabylie, Thaibi, Commune noire de Guelma, Commune verte de Guelma, Chetoni, Cornicabra, Cucco, Escudier, Fenaya, Noire des Beni-Abbès, Grosse de l'Oued Imbert, Grosse du Hamma, Gros Caillou, Limbi de Seddouk, Judoleira, Manzanilla, Lucques, Olive de Boghni, Olive de Cheurfa, Olive de Tlemcen, Olive du Tell, Oeuf de Pigeon, Régalis, Picholine, Rougette de la Mitidja, Roussette de Guelma, Olive de Souma, Verdale, Tausche, Tefah, Olive du Sig, Sevillane.

This collection, which is revised and increased each year in accordance with the experiments and observations made in the test plots, is shown in the lecture hall of the Insectarium of the Experimental Gardens.

The list of the olive varieties should not be solely local in scope for there is no doubt that in the course of the past centuries, as a result of trade or the intentional or accidental dispersion of seed and cuttings, numbers of similar types of olives have been transported and are cultivated under different names in the different countries of the Mediterranean Basin, sometimes at great distances from their original home.

A profusion of lists and names, which invariably leads to confusion, should be avoided. To determine which varietal names are synonyms the collaboration of experts in all countries will be necessary.

PALESTINE. — A communication from the Director of Agriculture and Forests of Palestine states that up to the present it has not been possible to institute experimental olive plantations in accordance with the schedule approved by the C. I. S. A., but that it is hoped to establish in the future a centre of studies devoted to olive problems.

EGYPT. — The Ministry of Agriculture sends us the following information :—

I. — *Imported olive varieties that have succeeded in Egypt.*

A) *Oil Varieties :*

Chemlali	imported from	Tunis
Morinello	»	» Italy
Frantoio	»	» »
Leccino	»	» »
Piangente	»	» »
Manzanillo	»	» »
Correggiolio	»	» »

The Chemlali variety has an average percentage of oil, in the whole fruit, of 17 % in the Nile Valley and from 25-32 % in Mariut district based on the fresh weight.

The Morrinello 20-25 %, but the quality of its oil is inferior to that of the Chemlali.

The other five varieties have an average content which varies from 16-20 %.

B) *Varieties for pickling :*

Ascolano	} both imported from Italy and are picked green.
Cucco	

C) *Varieties for both purposes :*

Manzanillo	} imported from Italy.
Correggiolio	

II. — *Imported olive varieties that are still under trial.*

Mission and Sevillano	imported from	California
Calamon, Volo and Amphissa	»	» Greece
Shitwi, Octobery and Zarari	»	» Algeria and Tunis.

Some other varieties have also been imported from Spain and Asia Minor.

III. — *Varieties comparatively indigenous to Egypt.*

The Fayoum district is the region where the olives are mainly planted. The total olive areas there amount to approximately two thousand acres. In other regions of the country olive trees are also seen scattered here and there, but only for the home use of the individual owners.

The five varieties planted in this country for hundreds of years are:—

Teffahy, Ageezy Shamy, Ageezy Aks, Balady and Kobrosy. They are mainly used for pickling. Their oil content based on the fresh weight of the whole fruit never exceeds 10 %.

IV. — *Trial plots.*

The Ministry has been experimenting with olive varieties (especially those rich in oil) at Borg-Al-Aarab, Mariut District, since 1920, and has come to the conclusion that it is a very promising region for olive culture and the establishment of an olive industry.

Trial plots have been also established at Giza, Sinai and Osis. They all seem to be very promising.

V. — *National Commission.*

The Ministry considers that the olive industry is not yet sufficiently developed in Egypt to justify the establishment of a National Commission for the purpose as was suggested by the IXth International Olive Congress at Tunis. The Ministry, however, has been endeavouring during the last few years to encourage olive growing in the country and to guide the growers regarding the recent methods of picking, as well as the extraction and refining of the produced oil.

There is no need for further insistence on the importance of the problem under discussion. Its importance has been made clear in the course of the various Olive Congresses. The interest in more exact knowledge of the varieties of olives is justified from a practical standpoint by its repercussion on the development and improvement of the production. It is thus essential that all the other olive growing countries should send to the International Institute of Agriculture as soon as possible the necessary information to give effect to the resolutions of the Tunis Congress. The question will then be gone into thoroughly by the next International Olive Congress which will take place at Lisbon in the autumn of 1933.

A. PASCUAL.

Miscellanea.

CROPS OF TEMPERATE COUNTRIES.

EXPERIMENTS ON NITROGENOUS MANURING OF WHEAT IN ITALY. — In 1926-27 the Italian Ministry of Agriculture arranged several experiments on the nitrogenous manuring of wheat on the principal experimental farms or stations of the country for the purpose of finding the most suitable amounts and periods of application under the various conditions. The experiments carried out at the Rice Experiment Station at Vercelli in 1930-31 were designed to: (1) compare the results of nitrogenous manuring in winter with those in spring; (2) compare the results of application 15-30-60-90 kg. of nitric nitrogen; (3) compare the early *Villa Glori* with the late *Todaro 96*; (4) compare the results of the various nitrogenous fertilizers (ammonium, sodium and calcium nitrates). Sowings took place in October 1930 under good conditions and germination was satisfactory. The plots had an area of 1000 square metres each and rice had been the preceding crop. Seed was machine drilled at the rate of 150 kg. per ha. Win-

ter manuring was carried out from 3 December to 23 February at intervals of ten days, spring manuring on three dates, 2 and 22 March and 12 April. The nitrate contained 15 % of nitrogen. On 26 and 27 May a violent storm caused lodging on many plots, particularly on those sown with *Todaro 96*, and unit-yields were accordingly diminished. The harvest took place on 17 June for *Villa Glori* and on 23 June for *Todaro 96*.

The results obtained were as follows: (1) winter manuring was slightly superior to spring manuring for applications not exceeding 30 kg. both in the case of *Villa Glori* and in that of *Todaro 96*; (2) manuring at the rate of 90 kg. was advantageous only in the case of *Villa Glori*; (3) the early *Villa Glori* was in every case more productive than the late *Todaro 96*; (4) for *Villa Glori* the most effective nitrate was nitrate of soda, then nitrate of lime. For *Todaro 96* the difference between the various nitrates was hardly appreciable.

(SAMPIETRO in *Il Giornale di Riscoltura*, Vercelli, 1932, Vol. XXII, No. 8, pp. 122-124).

POTASH AND LODGING OF CEREALS. — Experiments carried out by the Institute of Plant Production at Prague show the considerable influence of potash on the strength of barley straw. The young plants growing toward the light broke easily. The influence of potash was clearly seen from the percentage of broken stems: 7 % in pots receiving applications of potash and 96 % in those not receiving such applications.

Similar experiments were carried out in the field by UMBERG on land fairly rich in potash, in which Neubauer analysis showed a content of 61-63 mg. of potash. Plots receiving an equal quantity of N and P were divided into sections respectively without potash, and those with progressive applications of potash, commencing with 400 kg. per ha. of 40 % potash salt. Heavy lodging was observed on the section without potash and the crop was smaller than that on sections receiving potash. Manuring in excess of soil needs has therefore economically a favourable result. The constitution of the straw on sections receiving the heaviest application of potash was particularly strong.

BERKNER and SCHLIMM, carrying out experiments on the same subject and applying strictly scientific methods, arrive at less definite results. They were unable to observe any precise effect of potash on the stiffness of the straw of various varieties of oats and barley on which their researches were made. However, in the majority of cases the use of potash produced an increase in the diameter of the vascular bundles and, with one exception, an increase in the thickness of the sclerenchymous tissue. Flexibility was found to be distinctly increased on the plots richer in potash. If it is admitted that plants with an apparently stronger anatomic constitution are more resistant to lodging it may be concluded from the foregoing that potash increases resistance to lodging.

No relation between the silicic acid content and stiffness of straw could be determined. Phosphoric acid did not show any considerable influence on resistance to lodging.

(BLATTNY and VUKOLOW, Zur Kenntnis histologischer Grundlagen des Einflusses von Kali gegen das Lagern von Gerste. *Die Ernährung der Pflanze*, Berlin, 1931, pp. 335-358 — UMBERG, Trägt eine Ueberschussdüngung mit Kali noch zur Ertragssteigerung und Halmfestigung des Getreides bei? *Die Ernährung der Pflanze*, Berlin, 1931, pp. 354-355 — BERKNER and SCHLIMM, Untersuchungen über den Einfluss des Kalis auf die Standfestigkeit des Getreides. *Landwirtschaftliche Jahrbücher*, Berlin, 1931, pp. 504-519).

N. G.

THE NEW "FLORENZIA" PLUM. — This new variety, which originated spontaneously in the neighbourhood of Florence, has since 1926 attracted attention by its precocity and the beauty of its fruit. Graftings on almond and plum have given excellent results. The variety is very resistant to unfavourable weather conditions, it thrives with any type of grafting and self-pollination is carried out satisfactorily.

Fruit-formation is very good and production exceeds that of *Burbank*, a similar variety. The fruit has exquisite flavour and consistency and sometimes attains a weight of 90 grams, a length of 50 mm. and a circumference of 17 cm. The variety ripens from twelve to fifteen days before *Burbank*, which is highly valued for its precocity.

(*L'Italia agricola*, Roma, 1932, No. 8).

G. S.

OLIVE CULTURE IN EGYPT. — For some time olive growing has been rather neglected in Egypt despite the fact that the country possesses large areas at present uncultivated on which the tree could be planted. Development of olive culture in Egypt depends largely on the varieties cultivated.

At one time nearly 20,000 acres were devoted to the olive, with two million trees, an average of 100 per acre; at present the area occupied by olives does not exceed 2,000 acres. The diminution is due principally to the fact that the five varieties cultivated give a very poor yield of oil.

The horticultural section of the Ministry of Agriculture, realizing the importance of this crop to the country, began in 1920 to introduce new varieties from several countries of the Mediterranean basin as well as from America. From Italy there were introduced fourteen varieties for the production of oil and of table olives. From Tunisia the *Chemlali* variety was introduced; it has, like the *Morinello* variety, a very high percentage of oil. The horticultural section has established olive groves at Maryût and in other districts.

The irrigation of the olive groves depends on the nature of the soil and on local climatic conditions. In general there are five irrigations (from January to September) on light lands and three (from February to September) on heavy lands.

The five varieties native to Egypt are *Toffai*, *Ageezy Agiz*, *Shami*, *Ageezy Aks*, *Baladi* and *Koubrosy*.

The greater part of the production is destined for table use.

(ABDEL BADIE in *Pamphlet* No. 18, Government Press, Cairo, pp. 1-9, 10 fig.).

A. P.

TROPICAL AND SUBTROPICAL AGRICULTURE

Miscellanea.

COTTON GROWING IN SIND SINCE THE CONSTRUCTION OF THE SUKKUR DAM. — We have received from the Publicity Officer of the Indian Central Cotton Committee, the following information on the growing of irrigated cotton made possible by the Sukkur dam. As this new canals gives rise to special problems, the Government of Bombay Presidency has set up a research station at Sakrand (Sind) to study them.

Nature of investigations. — The aims of the work were: (1) the evolving of new types of crops of high quality, (2) the reclamation of large tracts of salt lands, and (3) to study methods of cultivation which would ensure high yields under the new distribution of regulated supply of water. The Indian Central Cotton Committee sanctioned a scheme for five years in 1927 for working out the water requirements and other allied problems of the cultivation of cottons. The questions that arose right in the beginning were: (a) sowing date, (b) testing of the duty or the amount of water which will be suffi-

cient for the successful growth of cotton and how best to apply it so as to ensure high returns, (c) what would be the effect of perennial irrigation on soil conditions and fertility, and (d) what would be the best methods in which long stapled cottons could be grown or what are the obstacles that stand in the way of their successful establishment.

These were some of the more important questions studied at Sakrand. The first five years' results are now available and a summary of the main conclusions is given below for general information.

Nature of environment. — The climate of Sind is generally uniform for all years with high temperature of 117°F. in May and June and an average of over 100 deg. from March to October. During the period of intense heat there are dust-storms from the west. From October the temperature rapidly goes down to 30 deg. in December and frost is expected, while in some years it has gone down to 20 deg. Cold waves sweep over the land at this time. Rainfall is usually negligible, being only about 5 inches, but in some years it is as heavy as 20 inches.

Of the insect pests and diseases, the damage done by 'white ants' is the greatest in reducing the stand or the number of plants in the field. Sooner or later, some suitable measures will have to be taken for eradicating this pest. The Spotted Boll-worm at present is not so serious but it is likely to assume importance when cotton cultivation becomes more general.

The soil is clay-loam near the surface with a mixture of sand and clay-loam below and deeper down is stiff clay. Intensive watering thus creates the possibility of formation of water-logged areas. The *Kalar* or toxic alkaline salts such as sodium chloride and sodium sulphate are found in varying degrees from plot to plot all over the area, but even a high proportion of these salts is no deterrent to cotton growing as their effect is neutralised by the presence of calcium salts. It is the preponderance of toxic salts which makes some parts of the province unfit for cotton growing.

Sowing date experiments. — It is found that, with perennial irrigation, the sowing date could be pushed as early as mid-March if desired, but while this gave the plants the advantage of May and June heat it made them subject to disease. Late sowing, on the other hand, gave plants too little time to develop before intense flowering commenced in August. The best time seems to be mid-April to May. Flowering starts in 50 days after sowing and continues till December but boll formation occurs almost at the same time for all sowings. Hence the quality of the lint was not affected as it depends on the climatic conditions at bolling time. The yield was affected in quantity, the later sowings giving only half that of mid-March to May sowing, there being a slight advantage in mid-April sowings.

Watering experiments. — Experiments on watering showed that, for dry and virgin soils, heavier watering than the standard of about 100 duty (i. e. 37 inches in five months) was required, in which case 80 acres would have to be irrigated with the supply meant for 100 acres. For fertile soils, the supply has to be lower, about 5/6 of the standard. For medium soils, the Barrage supply would be best. It was found that an initial dose of 8 inches of water gave best germination, but the interval for the second watering has to be longer than the usual 30 days. In any case, it has to be at least 4 inches. After second watering, the best interval seemed to be 15 days as it gave steady growth to the plants, but with any appreciable measure of unexpected rain, longer intervals would have to be allowed. The important thing is to prevent lack of moisture in the soil as this causes depression and even wilting.

Heavy watering was found to induce more profuse flowering but shedding also was profuse and the percentage success showed that judicious intervals with medium to heavy watering gave best results. The effect of different watering is sometimes masked by

the original water in the soil and proximity to water table. This gives a useful hint for economising water under certain conditions. Otherwise the danger of water-logging becomes imminent.

Moisture and nitrogen supply. — The Sind soils have been found to be very rich in nitrogen content. This fact, along with controlled water, high temperature and plenty of sunshine explains the great luxuriance of crops grown in the province. The weight of dry matter in the plant gave conclusive proof of the more rapid growth of plants with heavier watering, it being nearly double that of plants with low watering. In August and September, when plant growth is very vigorous, the standard supply of water was not only fully consumed by the plants but in some cases they had to make up the deficiency in nitrogen and moisture by tapping the initial water content present in the soil. One important lesson of practical economic value learnt during these experiments was the loss of soil nitrates during September and October — a period of flowering and boll formation in Sind. This could easily be remedied by an application of some readily soluble nitrogenous manure with a view to supplementing the original nitrogen content of the soil.

Study of cotton varieties. — The Government of Bombay is responsible for the breeding of suitable varieties of cotton and for this purpose no less than nine varieties were grown under similar conditions to determine their comparative fitness for Sind. Some were of Egyptian origin like the Ashmouni, Boss III and Sea-Island, others were pure American like Acala Ardmore and Hartsville and yet others were the domiciled Punjab-Americans such as 4-F, 285-F, 289-F and the *Deshi* Sind variety 27 W. N. From a physiological study it has been found that the quality cottons i. e. the Egyptians and long stapled Americans (directly imported) comparatively suffer more from attacks of insect pests, such as white ants and diseases like red-leaf, which make them unable to compete in the matter of yield with the local *Deshi* or acclimatised American varieties. Besides the breeding of resistant and hardier varieties which is being done in the Botanical section at Sakrand, work on the physiological aspect would also be carried on.

General conclusions. — The Agricultural Department will be co-ordinating the results obtained in this section with those of other sections at the Sakrand Farm and the growers will be advised regarding the best conditions for cotton cultivation in Sind. It is likely that the sowing season will be shifted to April and that the water supply will generally be at the standard rate which gives about 37 inches of water for the season, though this may have to be curtailed when there is rainfall. Manuring may have to be used in September when plant growth is vigorous and the soil is unable to supply all the nitrogen needed. The control of pests and diseases will have to be further investigated and, if this can be achieved, it may be possible to grow the exotic varieties but till then, *Deshi* and Punjab-Americans are the only types to be grown in Sind.

J. L.

EFFORTS MADE IN RUSSIA TO INCREASE THE CULTIVATION OF RUBBER PRODUCING PLANTS. — For some years past Russia has sought to produce at home the raw materials necessary for its rubber industry.

In 1876 at the Philadelphia Exhibition, there were shown samples of rubber obtained from the «guayule» (*Parthenium argentatum* Gray) a plant of the composite family growing wild in the deserts of Mexico and the southwest of the United States of America. Since then the Americans have not ceased to be interested in this plant. In 1901 they had already produced 9,542 metric tons of guayule rubber. In subsequent years, however, production decreased.

The Americans have made a fundamental study of the methods of growing this plant and harvesting and extraction have been rationalised with the result that, despite the high cost of labour in the United States, guayule rubber has competed with *hevea* rubber from India.

But the Americans closely guard the secret of their processes. The Salinas experimental station, where the experiments are carried out, is carefully watched. The Russians have therefore had to make their own new fundamental researches. They have made a beginning by procuring guayule seed from the botanical gardens of Messina, Palermo and Montpellier and other seed of American origin, collected partly by the members of the botanical expedition sent to Central America by the Soviets. A study was first of all made of the polymorphism of the species and its physiological and morphological characteristics in order to be in a position to deduce the basis of future selection. More than 8 forms of *Parthenium argentatum* have been distinguished. These different forms have been tested for resistance to cold and drought, which are of fundamental importance to growth under the Russian climatic conditions. Voluminous data on flowering, pollination and fruit formation have been compiled. One discovery made is the fact that propagation takes place ordinarily by self pollination.

If the resistance of guayule to cold and drought can first of all be successfully increased and then its rubber content augmented (and according to the experiments already made this can certainly be attained), the plant will constitute a very important source for rubber production.

The best varieties selected by the Americans contain 18 % of rubber in relation to the dry plant. The wild plants contain only 10 %-12 %.

The most suitable lands for growing guayule are those situated in dry, sub-tropical regions near the Turkish and Persian frontiers to the west and east of the Caspian Sea, especially the Baku area. The object in view would be to utilise waste land which it is impossible to irrigate and which is quite valueless for the purpose of producing the raw materials for which the U. S. S. R., until now, has depended entirely on foreign sources of supply. The producers of rubber are faced with a new competition, the development of which it will be very useful to follow.

(V. PUSSAREV, Ueber die Methodik der Züchtung der Kantschukliefernden Pflanze «Guayule». — *Zeitschrift für Züchtung*, Berlin 1932, Nr. 4, p. 583-621).

N. G.

THE CULTIVATION OF GROUNDNUTS (*Arachis amricana*) IN TUCUMAN (ARGENTINE REPUBLIC). — In No. 19 of the *Boletín de la Estación experimental agrícola de Tucuman*, October 1932, p. 1-6, E. F. SCHULTZ makes a study of groundnut growing in this region.

The soils most suitable for this crop are light and preferably sandy humus, or the fresh and not too wet soils of Tucuman; groundnut may be sown successfully in October and November. The growth cycle of the groundnut plant in this region is 5-5 ½ months. Sowing is generally effected by machine (using somewhat modified maize or cotton drills). The quantity of shelled seed or «kernels» employed is 35-50 kg. per hectare. Such drilling results in uniform germination. The seed is drilled to a depth of 6-7 cm. The distance between the rows is 60-75 cm and the plants are 20 cm. apart. If a drill is not available unshelled seed is used; the operation is slower but gives excellent results if good quality seed is sown. The plants germinate 10-15 days after sowing; during the growing period the soil should be weeded well. At Tucuman, the yields obtained vary from 1,500 to 1,700 kg. per hectare of groundnuts in the shell.

The installation has just been completed of an oil factory equipped with modern machinery and having a production capacity of 10 metric tons of groundnuts daily. The groundnut «Imperial» gives an oil yield of 47.64 %, «Valencie» 44.66 % and

Comun 44.69 %. The Tucuman Agricultural Experimental Station recommends the "Comun" or "Colomed groundnut" both for consumption and for industrial purposes, because this variety adapts itself very well to growing in the region. This station, moreover, has at its disposal good quality seed for sale to farmers at moderate prices. A. P.

METEOROLOGY IN INDIA. — The Meteorological Department of India has opened a new section of agricultural meteorology at Poona. This organisation began to function in September 1932. Its activity has been provisionally approved for a period of three years. It is financed by the Imperial Council of Agricultural Research. Dr. L. A. RAMADA, Agricultural Meteorologist, is in charge of the direction of this new section. J. L.

AGRICULTURAL ENGINEERING

Miscellanea.

LAND RECLAMATION. — The special article on Land Reclamation work in Italy contributed to the *Times* by so high an authority as the Chief Scientific Adviser to the British Ministry of Agriculture and Fisheries is of much more than passing interest, being in effect a vivid description, based on personal observation, of all the chief features in the great effort now being made in Italy to render in the words of the writer "mountain and marsh fertile".

The term *bonifica* is defined as "the improvement of the country side in all its aspects" and reference made to the importance of malaria control as an important factor in bringing back to cultivation land required for the growing population of Italy. Stress is justly laid on the treatment of mountain areas under the scheme. Here afforestation is an essential element but attention is also drawn to the measures taken to check soil erosion and to restore a cover of vegetation on the hill slopes now frequently nothing more than a core of rock and barren clay as a result of unregulated fellings and grazings. Foresters will appreciate the force of the writer's description of the goat as a "desert making" animal.

Attempts to control the natural waters of Italy are of the very essence of the scheme. A typical river in Italy comes from the mountain side in summer as the merest rivulet but in winter as a veritable torrent, carrying with it alluvium from the denuded slopes. The Mediterranean being tideless, the débris either chokes the estuary or is deposited along the coast as malarious marshland. Thus reclamation starts by checking run off in the mountains and then canalizing the discharge in the low lands to allow the surplus land water to flow freely to the sea. The process is completed by systematic drainage of the marshes at various levels by pumping or otherwise, surplus water being in some cases stored in reservoirs for purposes of irrigation. It is pointed out that water regulation is by no means confined to the marshes and in this connection reference is made to an improvement scheme for a highly cultivated area in the foothills of Udine where the land is in part extremely dry and in part has an excess of water. Here an ingenious scheme of combined irrigation and drainage canals is giving good results and irrigation has made it possible to substitute a considerable cultivable area for what was formerly poor grazing land.

Some account is given of the normal methods of procedure for establishing a reclamation plan for a given area, including the formation of "consortia" by the landowners of the district, together with a brief summary of the general financial arrangements. It is noted that the greater part of the capital is as a rule provided by Gov-

ernment or local public funds, in some cases up to as much as 87½ per cent. Interest charges are assessed on each holding as part of the original scheme and, where the settlement of an area is organized by the National Ex-Service Men's Organization (« Opera Nazionale Ex-Combattenti »), the occupier becomes owner after the payment of a certain number of instalments.

The remainder of the article is devoted to a description of two great zones of *Bonifica* operations lying to the north west and south of Rome respectively. In the first of these zones an area of about 20,000 acres of marsh land, of which two-fifths are the property of Prince Torlonia and the remainder controlled by the Maccarese Company, has now, within the relatively brief period of six years, been reclaimed and brought to the stage of crop-bearing. Maize, oats, barley and fodder crops are chiefly cultivated, with vines, fruit and vegetables on the higher levels near the sea where the presence of dune sand makes for a lighter soil. Here too large numbers of cattle are kept and milk production for consumption in Rome is a special feature. Horse breeding and poultry raising are also carried out on a considerable scale. It is worthy of note that the permanent population of this area, which in 1925 was only 50 malaria stricken persons, has now risen to over 4,000 and will shortly be nearly doubled and that the value of the output, less than 1,000,000 liras in 1925, is now 19,000,000 liras and should be twice as great in course of time.

On an even larger scale but less advanced is the scheme for the reclamation of the Pontine Marshes with their long history of malaria, lying some 40 miles south of Rome and approached by the famous Appian Way. The total area covered by the plans of drainage and irrigation is some 180,000 acres and is intended for lay out in small holdings, one large section being controlled by the Ex-service Men's Organization and planned for 50 acre farms, whereas a 20-acre farm unit is more general in other sections. As yet settlement has not begun and the workers from whom the settlers will be drawn are still wage-earners. Drainage has however now sufficiently progressed on great tracts of land to allow breaking up and there are good prospects of early cultivation. A system of warping is being applied to the lagoons near the coast whereby it is hoped to obtain cultivable areas broken by fish bearing lakes.

Expenditure on *Bonifica* during the last 10 years has undoubtedly been a costly affair, but it is claimed that over a million acres have been or are being reclaimed. It must at the same time be borne in mind that agriculture remains the chief industry of Italy and that according to the most recent figures 31 per cent. of the total population was employed directly or indirectly on the land. Furthermore the money has been spent within the country and almost entirely on labour and the expenditure has given results which are concrete and of lasting value.

(HALL, Sir DANIEL, *Bonifica*, London, "Times" Office, 18 November 1932).

T. W.

PNEUMATIC TIRES FOR FARM CARTS AND TRACTORS. — In England and America for some time past wheels fitted with pneumatic tires have begun to be used instead of the usual wooden or steel wheels, as they were found to give improved traction. The chassis of old motor vehicles are purchased and converted for the purpose. The traction power required is found to be less than with ordinary carts. Experiments have recently been carried out in England with 2-wheeled carts for horse traction. It was found that an ordinary cart weighing 5 quintals and carrying a load of 5 quintals could with difficulty be drawn in a zig-zag course over ploughed land with a slope of 10 %, whereas a cart of the same size fitted with pneumatic wheels weighing 3 quintals was drawn with a load of 14.75 quintals over the same land in a straight line.

Another trial on a road of 1:22 with four-wheeled carts carrying equal loads, one with steel rims and the other with tires and ball bearings, proved that the same horse

which could draw the former over only half the course, found no difficulty with the latter even with a heavier load.

In America trials are also being made with tractors fitted with low pressure pneumatic tires to replace steel-lugged wheels for field work. The tests have shown that the rubber tires give a better grip particularly on sandy soils, but are less satisfactory on wet clay.

These experiments are worthy of being continued, for if it is possible to replace steel-lugged wheels for field work by tired wheels without loss of grip and without too rapid wear and tear of the rubber, there would be no further need for changeable wheels and a number of drawbacks would be eliminated and power farming would be simplified.

It remains to be seen whether pneumatic wheels will grip the soil better than steel lugs on all soils and in all conditions.

(*Farm Implement News*, Chicago, Ill., No. 30, 1932, *The Implement and Machinery Review*, No. 692, 1932, *Die Technik in die Landwirtschaft*, etc.).

THRESHING MACHINE TRIALS IN U. S. S. R. — In order to determine the type of thrasher which is adapted to the agricultural conditions of the U. S. S. R. comparative trials were carried out with 36 threshing machines of American and European construction.

The American machines gave a yield which was on an average 43.5 % greater than that of the European machines and with half the consumption of the latter. The cost of running the American machines was 30 to 50 % lower than that with the European machines (*Archiv des Landmaschinenwesens*, November 1932).

H. J. H.

ANIMAL HUSBANDRY

Miscellanea.

General Questions.

THE LIVESTOCK AND MEAT SITUATION IN FRANCE AND THE MEASURES TAKEN TO IMPROVE PRODUCTION. — M. A. DE CONTADES, Secretary General of the " Association Générale des Producteurs de Viande ", gives a very full and authoritative account of recent happenings on the livestock market and the action that has been taken to relieve the critical situation.

After the slump in most of the products of the land, in the autumn of 1931 there was a tremendous fall in the prices of livestock, on which numbers of farmers had been relying to pull them through the serious situation that had arisen as a result of the well-nigh general losses on the sale of other farm products. Pig prices had already been falling steadily from the spring of 1930 ; in the first quarter of 1932 the drop was by 37 %. Other stock animals such as heavy cattle, calves and sheep, after a period of falling prices from the summer of 1930, dropped suddenly in the second half of 1931. The total percentage of reductions on all stock was about 35 %. It should be noted, however, that early in the second half of 1932 a slight improvement was beginning to make itself felt, in large stock as well as in pigs.

The fall has been the result of a number of factors of unequal import, namely :— reduced meat consumption, difficulties of production (the weather favoured the hay crop, thus causing a sudden increase in meat production and flooding of the meat market), a drop in the prices of the bi-products of the slaughter-house, keen foreign competition and relatively little protective tariff.

By the first three of these factors the public economy and private enterprise has happily been little affected. It is more particularly against foreign competition that action has been taken. International agreements have been arranged to put a check on the influx of foreign meat on the French markets. In this regard the various quota measures that have been passed since 30 September 1931 have been particularly effective. The measures have received adverse criticism, on the grounds that they have been taken too late, that the quotas have been fixed too high, that the quarterly re-arrangement has had its drawbacks and that the lack of organised control has allowed the quotas to be enormously exceeded.

The writer however considers that satisfactory results should be recorded of this new method, although its defective application at first, in consequence of the inevitable preliminary trials and errors, has had its drawbacks. In his opinion the quota system has attained its objective, seeing that the total imports during the last quarter of 1931 were considerably lower than in the preceding period. Moreover from the beginning of December 1931 until the middle of February 1932 the frontiers were practically closed to foreign merchandise.

As a result of the early experiments the quota measures have been very largely improved. The writer is of the opinion that with the present improved measures of control (importation permits, distribution of quotas by the Governments of the exporting countries themselves) the French market would appear to be safe from further exceeding of quotas. Finally, he considers that the quota system, as regards meat and livestock, seems to be gradually becoming determined on principles which satisfy the requirements of the French producers, both from the point of view of securing an improving market with at the same time no risks of exceeding the limits prescribed.

(*Revue des Agriculteurs de France*, Paris 1932, n° 7, p. 225).

REORGANISATION OF STATE STOCK FARMING IN THE U. S. S. R. — In consequence of the unsatisfactory results obtained by the large State farms they are beginning to be reduced in size so that no one has more than 8000 head of stock. The "Sovkhoz" (State farms), of which the acreage has already been considerably reduced, have been subdivided into several stock farms, usually 4 to 7 per *sovkhoz*. All these farms are independent, have separate budgets and schemes of production and are directed by an administrator, an inspector of livestock and an agricultural expert. In their present form the *sovkhoz* are no more than organs of centralisation which bind the farms together. A new method of paying all the farm hands enforces the development of a trained and specialised personnel. The lack of qualified stockmen is now thought to have been the cause of the unsuccessful stock breeding which has occurred in spite of the large numbers of improved stock imported. Farm workers who have given proof of their willingness and capacity for work are given a 30 % increase on their normal wages or salary, or have their pay reduced by a similar amount if their work output is insufficient in quality or quantity.

The meat supply of the urban population having left much to be desired of late, a 15 months plan has been arranged (from 1 October 1932 to 1 January 1934) for the supply of meat and fat stock to the State. Thus the quantity to be supplied by the State farms has been increased from 130 000 to 300 000 metric tons. In fixing the amounts to be levied on peasant holdings more consideration has been taken for collectivised peasants than for independent peasants. In the Ukraine, for example, the independent peasant farms must supply 45 kg of live weight, as compared with 30 kg for collectivised peasants without stock farms and only 20 kg for the peasants collectivised into collective stock farms. It should be noted that the meat compulsorily supplied is paid for at a rate fixed by the State.

M. BUDER, an agricultural expert and the writer of the article from which this information is drawn, remains sceptical about the future of Russian stock farming. The success obtained up to the present in arable farming with the help of large-scale use of machinery cannot be counted on in the case of stock breeding, where the personality of the managers and even of the hired hands plays a role of primary importance. No measures, however suitable, can lead to progress unless there is available a qualified personnel, and the formation of that requires time.

(*Nachrichten über den Viehund Fleischmarkt*, Berlin 1932, Nr. 41).

Feeding and Feedstuffs.

NEW METHOD OF FODDER STORAGE WITH ACID. — Prof. A. KÖNEKAMP (Landsberg) describes trials of a new method imported from Finland into Germany, where it has been studied and described by Profs. KIRSCH and HILDEBRANDT (*Arbeitsvorschriften Landwirtschaftliche Presse*, Berlin 1932, Nr. 15).

The process requires no silo. The fodder is placed in a tank sunk in the ground and its preservation is ensured by diffusion of a patent acid. The system seems likely to develop a certain importance, especially in the farming of pasture land where in spring there is an over-supply of grass. The tank being installed on the pasture itself is able to receive the surplus; then, in June and July when a grass shortage is liable to occur, the reserves may be fed to the grazing stock.

The writer regards the new method as a satisfactory means of disposing of surplus grass. The cheap tanks will be of special interest on farms where the pasture and meadows are distant from the homestead and where hay making and storage must be carried out rapidly.

(*Deutsche Landwirtschaftliche Presse*, Berlin 1932, Nr. 34 and 35).

FATTENING OF YOUNG STOCK. — In Germany breeders are being recommended to fatten young stock in order to reduce the costs of production as well as the production of excessive quantities of meat. It is recognised that even in the present crisis marketing presents no difficulties in the case of young stock. The Research Institute of Tschechnitz has carried out comparative experiments on the fattening of young and mature animals, which have been followed up by tests of the dressing percentage.

Heifers, steers and bulls were fattened. At the beginning of the experiments the animals aged 7 to 8 months weighed from 190 to 225 kg. After a fattening period of 7 to 8 months they had attained a live weight of 450 to 475 kg.

The dressing tests showed that the heifers gave a beef corresponding to the requirements of the trade. For steers it would seem better worth while to begin fattening a little later and to do it more slowly. The same applies for bulls as the beef is insufficiently firm for curing requirements.

(*Nachrichten über den Viehund Fleischmarkt*, Berlin 1932, Nr. 43).

H₂O₂ r s e s.

TRACTORS AND HORSES IN THE U. S. S. R. — The Government Decree of 27 May 1932 emphasises the importance for the agriculture of the Soviet of adequate horse breeding. The too rapid spread of tractors has greatly reduced horse breeding, which is an economic error. The considerable delay in carrying out the spring sowings in White Russia, the Ukraine and the Ural district is attributed to the fact that these regions may be included amongst those which, in the terms of the Decree mentioned, use and feed their horses badly. The Decree states also that the tractor must not replace the horse but must rather supplement the horse power, and notes that horses

are still of considerable importance in the transport industry, on the farm and in the army.

The Government measures are directed more particularly against the indolence with which horses are employed. It is hoped that by the end of the second five-year plan there will be in use, in addition to the 15 million HP, 22 million well-bred horses.

Sheep.

IDENTIFICATION OF SHEEP BY NASAL IMPRINTS. — For the satisfactory working of pedigree registers it is essential to have an absolutely unimpeachable means of identification. In the case of cattle, and particularly those with a spotted coat, the system of charting the pattern of the markings is used. In other cases branding with a red-hot iron on the skin or horn is used, or else tattooing or fixing studs or rings on the ears. All these methods of identification have defects even when used for cattle, and are practically useless for sheep. Thus M. KREBS recommends a method using nasal impressions with white modelling wax. This process, which was originally studied by M. André LEROY, gives highly satisfactory results. It is used for the Flock Book of the Isle of France sheep, in which are entered the imprints of over 2200 rams. The use of wax gives much better results than does that of colours, which is used mainly in Germany.

(*Revue de Zootechnie*, Paris 1932, n° 8, p. 136).

MACHINE MILKING OF EWES. — In No. 9 of the *Union ovine* of 1932, M. REILLE-SOULT gives the results of experiments with machine milking of ewes carried out on the St. Pierre farm where since 1 March 1932 250 to 300 sheep have been milked in this way.

The apparatus is based on the same principles as that for cows, but with the necessary modifications which were investigated by the "Société des Caves et des Producteurs réunis" of Roquefort. The first difficulty to be surmounted was the small and variable size of the teats of ewes, to which is added a still greater variation in shape. A series of experiments showed that the cup must be neither too light nor too heavy: if it is too heavy it is liable to drop from the teat, if it is too light it does not exert the slight trigger action on the tissues at the moment of massage which is so helpful in effecting a successful milking.

One of the more important points studied was the suitable timing of the sucking movement. In the first experiments, in which the pace of the machine was approximately the same as for cows, a congestion of the teats and udders was produced, which naturally hurt the ewe. The experimenters then had the idea of observing a suckling lamb and timing the pace of suction and regulating the apparatus accordingly. Further experiments revealed the relationship between massage, rest and suction. All these experiments, together with the selection of the material, involved a considerable amount of work. Today the period of technical experimentation is at an end: the machine works successfully and already it seems that considerable advantages over hand milking may be expected.

Pigs.

YIELD TESTS OF PIGS IN EAST PRUSSIA. — In Germany yield tests with pigs similar to those already in use for cattle were started 12 years ago. Prof. SEEDORF (Göttingen) formulated in 1920 the qualities desirable in the best breeding animals. He stated that the best pig is the pig which, together with its progeny, gives in a given time the greatest quantity of meat and fat with the minimum of feed. On this basis the tests were begun in East Prussia. In 1927, two and a half years after

its foundation, the Pig Breeders' Association of Königsberg had already 30 branch organisations of control, comprising 450 members. These are independent organisations but connected with the Pig Breeders' Association, which nominates the inspector, gives instruction and supervises the general working of the branches. The inspector is paid by the branch; in general the breeders pay 40 to 50 marks per sow or boar, according to the number of breeding stock. Each branch must include 150 to 200 animals to ensure its budget. The inspector visits the inscribed farms every two or three weeks and gives advice on feeding.

The yield tests have so far been limited to Prof. SEEDORF's requirements. The introduction of fattening tests has been begun but it has not been possible to make the practice general. It has been found that it is not practicable to carry out research on the utilisation of feeds on the farm itself and only experimental farms are utilised for the purpose. In East Prussia the experimental farms of Heilsberg, which are now exclusively concerned with this work, have established fattening tests followed by dressing tests to find the best stock from which to breed. The results of these tests are published each year.

(*Nachrichten über den Vieh- und Fleischmarkt*, Berlin 1932, Nr. 44).

E. M.

AGRICULTURAL INDUSTRIES

Miscellanea.

INDUSTRIES OF PLANT PRODUCTS

BLEACHING OF FLOUR BY ENZYMES. — A new method which opens up a wide field for research is the bleaching of flour and other meals by means of a highly active enzyme contained in the soya bean. The enzyme in the form of a white powder is simply mixed at a rate of 5 % with the flour and after 2 or 3 days the flour is found to be satisfactorily whitened.

(*La Panificazione*, Milano 1932, No. 18).

REFRIGERATION AND TRANSPORT OF BANANAS. — A report by CLAUDE W. WARDLAW and LAURENCE P. MCGUIRE of the Cold Storage Station at Trinidad in November 1931 gives the following summary of results.

The experiments were carried out with the varieties *Gros Michel* and *Cavendish*. The latter was found superior to the former in resistance to tip rot and to low storage temperatures.

Rapid refrigeration to temperatures progressively lower than those normally used is to be recommended. Rapid refrigeration for 12 hours at 53° F. is possible and to be recommended without risk of freezing for a voyage of 15 to 20 days.

Although biologically temperatures below 53° F. offer obvious advantages, these temperatures are not considered advisable.

Latent infection in green fruit may cause considerable damage if the fruit is not cooled rapidly. Surface sterilisation has no effect against such infections, which can be controlled to an appreciable extent only by careful regulation of the temperature.

(*L'Industria Italiana del Freddo*, Milano 1932, No. 6).

THE STUDY OF CELLULAR PERMEABILITY IN PLANTS. — The direct method of sap extraction and the indirect method by examination of the medium are on the whole more sensitive than plasmolytic methods in the quantitative study of the permeability of cells. In certain cases, such as the penetration of dyes, the plasmolytic method cannot be applied. M. V. HOMES' researches on the extraction of the juice of various plants (apples, beet, etc.) in various conditions of temperature and pressure and the

varying quantity of salts extracted with the juices at different pressures, show the practical importance of such studies in the industries based on extraction and fermentation.

(*Bulletin de la Classe des Sciences*, Bruxelles, 1932, 5^e série, t. XVIII, no. 6).

ADVANTAGES OF THE USE OF RICE IN BREWING. — For a number of years the demand of the consumer has tended towards the sweet light-coloured beers. The colour of beer depends on a number of factors but principally on the colour of the malt. As the colour of malt deepens with desiccation the manufacturer is obliged in order to obtain pale beers to dry the malt at low temperatures (70°, say). Malt treated in this way keeps badly, its substances are not readily soluble and give a flavour to the beer which is not of the most highly appreciated quality; while malt dried at a higher temperature is deeper in colour and does not yield the required sweetness. The use of rice may be a technical and economic solution of the problem when the price of malt is taken into account, and the fact that in certain countries it is an imported product. The use of rice in brewing has the further advantages that it allows of the utilisation of well dried and dark malts which give the necessary sweetness; the musts are less rich in nitrogenous substances, which lessens the liability to sediment and turbidity; and a certain proportion of rice makes it possible to regulate the composition of the musts and to obtain well-fermented, stable beers. Rice thus gives the means of controlling fermentation, either by increasing the degree of fermenting of the musts or by retarding it. In the former case it is sufficient to increase the proportion of maltose in the musts by cooking the rice with a little malt and adjusting the malting water so that the temperature reached by the mixture during the softening process is from 55° to 40°. If, on the other hand, it is (as rarely happens) desired to reduce the sugar content and degree of fermentation, the rice is added with the second and last malting water which makes saccharification take place between 65° and 75° at which temperatures the starch yields little fermentable sugar. In intermediate cases part of the rice is added with the first and the rest with the second malting water.

(*Riz et Riziculture*, Paris 1932, Fasc. I, Vol. 6).

NEW USES OF RUBBER. — With a view to encouraging rubber consumption the Council of the Rubber Growers' Association of London in its annual report discusses suggestions for new uses for rubber, such as tires for rolling stock and upholstery (cushions, etc.) in railway carriages.

With regard to the acceleration of vulcanisation of rubber, none of the innumerable products proposed has so far proved entirely satisfactory. Piperidine pentamethylene dithiocarbonate alone would appear to be a genuine, rapid and active accelerator of vulcanisation, while at the same time improving the qualities of the finished product.

(*The Chemical Age*, London 1932, No. 669).

TEXTILES OF MADAGASCAR: « LALO ». — Madagascar is rich in textile plants. In addition to ramie, 'abaca', 'paka' (*Urena lobata*), various Malvaceous plants, etc., there is *Hibiscus esculentus*, the 'lalo', which is found over the whole island. The plant is hardy, easily cultivated and thrives on poor soils, such as drained marshland, old river beds, old rice fields, etc. The lalo stem yields five times as much fibre as the paka, and the fibre is readily extracted and superior in quality to jute. The plant reaches maturity in 3 months, has an average height of 3.5 metres and the fruits resemble elongated peppers, containing in certain varieties a large quantity of edible seeds of high food value resembling peas.

(*Fils et Tissus*, Guebwiller, 1932, No. 7).

TREATMENT OF COTTON MATERIALS, ARTIFICIAL SILKS, ETC. TO MAKE THEM AS UNCRUSHABLE AS WOOLLENS. — This remarkable invention which has been achieved by the 'Total Broadhurst Lee Co.' of Manchester after 14 years of experimentation, consists in impregnating the material, whether white, dyed or printed, with a solution of a synthetic resin which is converted into an elastic resin by heat. The fibre is strengthened and its resistance to moisture is nearly doubled.

(*Fils et Tissus*, 1932, No. 5).

INDUSTRIES OF ANIMAL PRODUCTS.

STANDARDISATION OF METHODS FOR CONDITIONING OF WOOL. — The special commission appointed by the last International Wool Conference to study this question unanimously approved the adoption of a scheme in 27 articles in which questions relating to methods of washing, oiling, carding, grading, texture, conditioning of wools, etc. are fully and clearly expounded.

(*Fils et Tissus*, Guebwiller 1932, No. 7).

IMPROVED TREATMENT OF WOOL HIDES. — The enormous quantities of wool coming from sheep killed for mutton (Australia, New Zealand, South America, South Africa, etc.) show defects resulting from the treatment in the slaughterhouse or from defective grading and chemical methods of separation, etc. These defects cause heavy losses in the trade by increasing the difference between clip and hide wools, the latter lacking the properties which make for successful spinning and fulling and dyeing less well.

Hide wools are of 3 different classes :—

- (1) Sun-dried wools separated from the skin by the sweating system;
- (2) Wools separated from the skins by chemical reagents, usually sodium sulphide;
- (3) Wools separated by treatment with lime.

The first class is the most important although the system used may not be the most satisfactory. The main centres of production are in France (Mazamet), England and Scotland. The separation of the wool is generally well done; the different parts of the fleece are graded according to colour, baled and sent to various centres for utilisation. At Mazamet the first grading of the wool is according to fineness and length of staple, then the skins are soaked, the water being continually renewed, then the teasles are removed and the earthy and insoluble matter by beating the skins. After further soaking the skins are placed in a closed chamber for 'sweating', until the fermentation set up in the moist skins loosens the fibre. During this process, however, there is liberation of ammonia which weakens the fibre. This drawback is diminished by prolonged sweating (5 days) at low temperature (65° F.). The action of the ammonia and water eliminates much gelatine and grease from the wool during carding. Wool thus treated readily takes up the oiling grease but has lost much of its flexibility and elasticity and does not felt well.

The system of separation by lime which is most generally used on the farm and in small factories, is not to be recommended as it weakens the fibre and injures the wool and grease.

The process used for the wools of the second category, namely separation by chemicals, especially sodium sulphide would appear to be the best. This has recently been introduced into the Colonies.

Sodium sulphide has the special property of rapidly dissolving the epidermis of the skin, while it improves the quality of the skin for tanning. After scouring the hides are impregnated on the under side with a 10 % solution of sodium sulphide. They are then exposed to the air for one night, after which the wool is readily pulled away by hand, the roots having been destroyed.

If the sodium sulphide treatment is applied after a rational washing and a light application of sulphured grease mixed with lanoline, the wool obtained is supple and elastic and is superior in quality to other hide wools, with considerable advantages for the industry and the value of the product.

(*Fils et Tissus*, Guebwiller, 1932, No. 7).

G. S.

AGRICULTURAL EDUCATION

Miscellanea.

SEASONAL AGRICULTURAL SCHOOLS IN FRANCE. — In *L'Agriculture nouvelle* of 26 Novembre 1932 M. BARBUT gives the following information :

There are two categories of establishments providing agricultural instruction :—

(1) *The Schools of Practical Agriculture* in which the course of study extends over two or three years and the time is divided between theoretical courses with their application in practice and practical work properly so-called.

(2) *The fixed or itinerant seasonal schools* which give mainly theoretical instruction, though of a highly utilitarian nature and adapted to local requirements, lasting over varying lengths of time.

The former, that is the real colleges of agriculture, necessitate the farmers' sons and daughters being away for a considerable time. The second type of school is better fitted to the needs of the small and medium-sized farm where the work of the family is an important factor.

The *fixed winter schools* are annexed to an establishment of university standing or to a school of practical agriculture.

Each session lasts four months, from November to March, and the studies are generally attended for two winters. Students are admitted from 15 years of age when they have already some practical experience which can be carried on between the two sessions on their father's farm or some other. These schools have accommodation for residential students and are under the administration of the establishment to which they are annexed. The technical studies are directed by the Director of the Agricultural Services of the Department or a professor of agriculture.

The courses include theoretical and practical work and excursions. The writer gives as an example the schedule of studies of the Winter Agricultural School annexed to the Lyceum of Beauvais. The theoretical classes study general and specialised farming, agricultural engineering, agricultural parasitology, rural economy and legislation, farm accountancy, general and specialised animal husbandry, agricultural industries and horticulture. The practical classes utilise the school collections, the laboratories of the Lyceum and the workshops of the professional school.

Once a fortnight the students visit the best farms of the district, various farm industries or agricultural shows or competitions. Every year there is a study tour to enable past students to come in contact with a new agricultural region.

The *seasonal itinerant schools* give more elementary instruction. They hold courses in the important agricultural centres of the Department in succession. The classes are held once or twice a week on a fixed day during several months and are concerned with arable farming, animal husbandry and veterinary work.

There are in France at the present time 52 fixed winter schools and 56 itinerant schools.

G. R.

AGRICULTURAL INSTRUCTION IN BELGIUM. — The *Annales de Gembloux* (November, 1932) give some comparative figures relating to agricultural instruction in various

countries. In France there are 70 official and private agricultural schools with 2500 students, and 500 post-student courses with 10,000 students. In Germany there are upwards of 1700 schools with a total of 70,000 students. In Denmark there are 95 schools with 10,000 students and 130 courses with 11,000 students. Finally, Belgium has 8000 post-student courses attended by 35,000.

G. R.

AGRICULTURAL RESEARCH

Miscellanea.

SWEDISH ASSOCIATION FOR THE CULTIVATION OF PEAT LANDS. — The Association has its headquarters at Jönköping; it has a laboratory and experimental garden at Jönköping, an experimental farm at Flahult, another at Gisselås and trial fields at

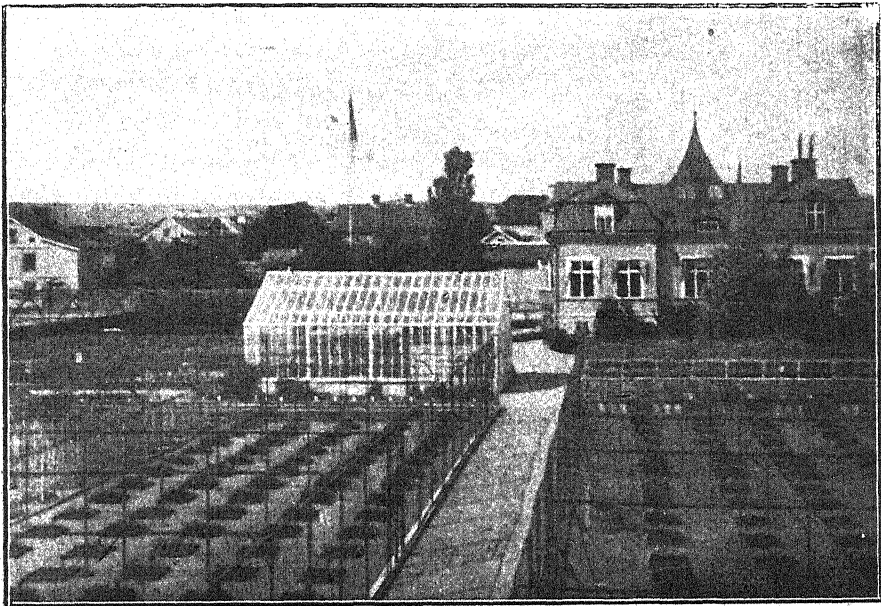


FIG. 1. — Laboratory and experimental garden of the Swedish Association for the Cultivation of Peat Lands, at Jönköping, Sweden.

Sörbyn. The Association was founded in 1886 and serves the whole of Sweden. Its total budget is 163 000 Swedish crowns, of which 119 000 were paid by the State in 1931. The Director at Jönköping is Dr. HUGO OSWALD, who is assisted by a technical staff of 8. Each farm is under the direction of a manager. The Association's activities are the following:— bringing peat land under cultivation, fertilising and liming; varietal trials of cereals, potatoes, clover and timothy; crop rotations; afforestation of peat lands; drainage experiments; etc. The Association publishes its results by means of lectures and issues a publication called the "*Svenska Mosskulturföreningens Tidskrift*". Growers are given advice by its experts.

MACAULAY INSTITUTE FOR SOIL RESEARCH. — This is situated at Craigiebuckler, near Aberdeen, in Scotland. It was founded in 1930. Its laboratories and experimental fields are at Craigiebuckler, and it has a demonstration farm on peat soil on Arnish moor in the Island of Lewis. The annual budget of the Institute is about 5000 pounds sterling, part of which is provided by Government grants and part from an endowment given by the founder, Mr. T. B. MACAULAY. The present Director is Mr. R. HART. The work of the Institute is as follows:— Research on the properties and possibilities of improving peat lands and poor mineral soils; investigation of the



FIG. 2. — Macaulay Institute for Soil Research at Craigiebuckler near Aberdeen, Scotland.

soils of Scotland; research on the phosphate content of the soils of certain districts; geological studies and studies on the mineral composition of soils; also the Institute is an information centre for farmers on questions concerning liming, fertilising, draining and cultivation. It works in collaboration with the 3 Scottish Agricultural Colleges and publishes its results in various journals, including *The Scottish Journal of Agriculture*, *The Journal of Agricultural Science*, *The Scottish Geographical Magazine*, etc.

THE AGRICULTURAL INSTITUTE AND EXPERIMENT STATION OF S. MICHELE ALL'ADIGE (TRENTO). — This establishment which is situated on the Verona-Trento-Brenner railway, was founded in 1874 by the provincial Tyrolean Diet and serves the whole Venezia. Its budget is composed of regular and extraordinary contributions and amounts to about 210,000 lire; these contributions are provided by the State and the Province of Trento, by the Provincial Council of Corporative Economy. The estates cover an acreage of 365 hectares and are used for both research and demonstration purposes; the soil is of sandy alluvial nature in the Adige valley, porphyritic in the mountains and of moraine origin on the coast; at an altitude of 1800 metres the soil

results from decomposition of Dolomitic rock. The establishment is directed by Prof. ENRICO AVANZI with an assistant staff of 5 persons. The crops grown on the estates are tree fruits and vines (30 ha), permanent meadow (5 ha), mountain pasturage (220 ha) and timber (48 ha). The general plan of work is the following :—

Grain growing : Cross-breeding and selection for improving wheat ; research on fertilisers and on milling products.

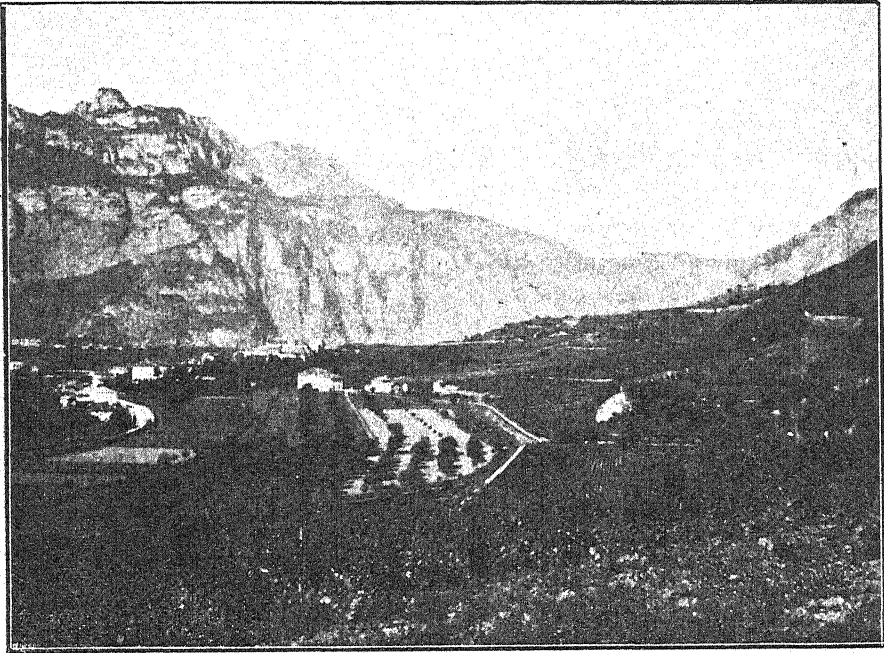


FIG. 3. — Provincial Agricultural Institute and Experiment Station at San Michele all'Adige (Province of Trento), Italy.

General view of the Experimental Farm adjacent to the Institute.

Viticulture-Oenology : Research on the introduction and spread of vines for wine production and table grapes, and on methods of wine making.

Cheese making : Research on the production of new types of cheese in the Venezie ; introduction of new types of cheese.

Animal husbandry : Selection of the Brown Alpine cattle and of pigs and poultry ; feeding trials.

The Establishment is also intended for demonstration purposes and has nursery plantations of vines and various tree fruits for sale ; it distributes selected seed and sells improved breeding stock (bulls, heifers, cocks, etc.) and ordinary breeding stock (pigs). It publishes a volume called *Experiments and Research* and a *Bulletin* which is the organ of the Institute and of the Itinerant School of Agriculture.

BOOK NOTICES *.

Problemi Zootecnici. Lezioni scelte al Corso di perfezionamento zootecnico organizzato dalla Università Fascista e dal Sindacato Provinciale Fascista Tecnici Agricoli. Bologna, 1932.

[A series of selected lectures on present problems of Italian stock farming given by leading specialists under the patronage of the Fascist University and the Provincial Syndicate of Agricultural Scientists. Prof. FORTICCHIA deals with Italian stock farming problems in general; Dr. CALZONE discusses the rôle of scientific and technical agricultural organisations and agricultural syndicates. The contents include also the following lectures:— Prof. E. LUPETTI on Stock breeding developments of Aemilia in the study of the Government programme of systematic improvement (to the text of this lecture is annexed a map showing the distribution of the different breeds of cattle in Aemilia); Dr. A. SIRRI on Animal husbandry in the province of Bologna: its present position and possible developments; Prof. A. GHIGI on Genetics and hybridisation; Prof. A. CUGNINI on Recent theories in genetics and their application to livestock selection; Prof. R. GIULIANI on Yield tests in general with special reference to those of meat production and work output; Prof. V. VEZZANI on Dairy cow testing; Prof. B. MAYMONE on Scientific principles in the rational feeding of livestock; Dr. R. CAVALLI on the practical application of the "Danish method" in cattle feeding; Prof. A. ANTONELLI on Control of sterility in cattle; Prof. A. LANFRANCHI on Contagious abortion; Prof. D. ZUCCHINI on Hygienic equipment of modern sheds for dairy cows; Prof. M. MARANI on Romagna cattle; Prof. O. PARISI on the Triple-purpose cattle of Aemilia; Prof. D. BRENTANA on the Pig tribe and their breeding in Aemilia; Prof. C. D'ALFONSO on Present sheep breeding; Prof. ANITA VECCHI on Problems of rural poultry keeping; Prof. F. MAIOCCO on Fur farming in Italy; Prof. P. LO GIUDICE on Rural and agricultural pisciculture].

S. T.

LICHTENBERGER, B. — *Milchwirtschaftliche Maschinenkunde*, 329 p., 185 fig. et 33 tableaux. Hildesheim 1932, Verlag der *Molkerei-Zeitung*.

[This volume by Prof. LICHTENBERGER, the Director of the "Institut für Maschinenwesen der Preuss. Versuchs- und Forschungsanstalt für Mülchwirtschaft Kiel" on dairy machinery and equipment is of fundamental importance for dairy experts as for students. The extensive subject matter is very fully dealt with in the 12 chapters composing the volume. After a brief and useful introduction, descriptions of dairy plant and equipment are followed by an account of the general principles of the parts of the machines, their elements, accessory parts and the requisite driving gear. Another chapter deals with the transport of milk and milk products: the packing of milk, skim milk and special milks and the transport of bottled and loose milk. Next are discussed the keeping of milk, containers, emptying and clearing of containers, milk measures and weighing machines. A special chapter is devoted to the operation of and appliances for filtering, centrifuging, heating and cooling milk and cream, and the making and packing of butter. In the cheese section special attention is paid to the machines and apparatus for making processed cheese. Bottling milk and the sealing and cleaning of the bottles are dealt with particularly thoroughly. In the chapter on special machines are included devices for destroying the scum on milk, installations for making sour milks (Yoghourt, etc.), homogenisers and ice cream]

* Under this heading are included books received for review.

plant. Finally the fitting up of a dairy is described and methods of avoiding accidents and estimating the machinery and appliances necessary are discussed.

A directory of firms making dairy equipment is a useful addition to this volume, which is well produced and abundantly illustrated with drawings, photographs and diagrams. The lucidity of the style will make the book appreciated by all as well as of great value to dairy experts.

E. G.

FORESTRY

Technical Progress in Timber Preservation.

The custom of applying some form of special preservative treatment to wood before utilisation is of long standing. Excellent results were obtained by means of quite simple maturing processes, more particularly in the case of wood which in practical use would not be exposed to the action of external agencies. Where however the wood is to be exposed to the air or buried in the ground maturation alone proved inadequate and in such cases it was found in practice that it was better to employ for the purpose hard types which were resistant to the ravages of insects and of fungus growths. As this form of utilisation was not adopted on any large scale, the question of supply as a rule presented little difficulty. During the 19th century however there was a constantly increasing demand, consequent on the rapid development of railway and telegraph systems and the increase in fellings brought about in many countries the risk of an early destruction of the reserve stocks of this class of tree. This period therefore saw the beginnings of experimental work made with the object of discovering wood preserving methods applicable to all kinds of timber. An Englishman, RYAN, was the first to apply the results of the early experiments to industrial uses, by adopting salts of mercury as a preservative.

These first attempts at wood preservation were considered very satisfactory but for a long while afterwards little further technical progress was made and it was not until the beginning of the present century that there was any considerable development in the study of the problem and in experimental work. Scientists and inventors have been chiefly concerned with the following aspects of the question: (1) the depth of the penetration of the preservatives; (2) the permanency of their fixation in the wood tissues; (3) the duration of their true effectiveness for their purpose. Later efforts were made to discover processes tending to reinforce certain properties of the timber as well as to render it proof against destructive fungus growths, etc., so that lower quality wood might be raised to the category of the most resistant varieties.

This last point is evidently of great importance since the increase of timber utilisation throughout the world will perhaps before long make it necessary to employ to the fullest extent all forms of available timber.

It is proposed here to give a brief account of the general principles that have in the past been adopted in connection with the general question of wood preserving together with some information regarding more modern developments.

METHODS OF WOOD PRESERVATION BY PROLONGED SEASONING. — The time-honoured process of stacking fresh cut timber in sheltered and well ventilated wood yards, where they are left for periods varying from two to five years, has always given very satisfactory results. At the time of felling, whenever it may take place, there are always to be found in the outer part of the trunks considerable quantities of nutritive substances in full development. These substances before felling were circulating freely in the live tissues immediately below the bark and in conditions of a practically constant temperature. For certain technical reasons it has been customary to remove the bark immediately after felling, a method of treatment which causes an abrupt check to the circulation of the nutritive elements which is particularly well marked in the cellular tissues, direct contact with the air causing a rapid drying up of these tissues so that the effects of external variations of temperature and damp are felt right to the heart of the wood. As the drying process thus becomes intermittent, deep cracks occur which allow a free passage within the trunk to various sources of infection.

INFLUENCE OF THE TIME OF FELLING ON PRESERVABILITY. — In this connection it has always been observed that the felling of trees when in full sap is prejudicial to their durability. This elementary fact has been thought to justify the assumption of a direct relation between felling and preservability. At various times experimental work has been carried out in Germany with regard to this question and with these experiments the names of NORDLINGER, HARSTEN, HARTIG and more recently of FIURY and FABRICIUS are associated. The experiments have shown that in general the influence of the felling period on wood preservation is not direct since the chemical composition of the external, histological elements does not change with the changing seasons.

Further research work on the subject has been completed recently in Switzerland on which a report has been published by KNUCHEL and GAUMANN and reference is here made to some of the chief conclusions, though it should be noted at the outset that the experiments were confined to fir and spruce timber. The period of felling had no effect at all as regards specific gravity and moisture content. On the other hand the time of felling had a quite distinct influence on the drying process, unfavourable in the case of summer fellings but distinctly good when the trees were cut towards the end of autumn. Where circumstances make summer felling necessary, it is desirable to leave both bark and branches intact in order to check too rapid drying-up.

The felling period was found to have no direct influence on the tendency to rot. In this connection a distinction must be drawn between timber fully exposed to the air and timber which is embedded in the ground. In the latter case timbers cut in the month of September are more inclined to rot than those cut in March. The degree of the tendency for exposed timber to rot depends rather on the conditions in which drying takes place after felling than in any direct sense on the felling period and trees that have been rapidly dried are the least resistant.

Experiments were also made by treating small samples of timber with pure cultures of various kinds of saprophytic fungi and their growth was carefully observ-

ed. These experiments served to confirm the general conclusions of the German experts but they also brought out clearly the important fact that, although there is no particular change in the chemical composition of the woody tissues during growth, physiological differences are shown in the cellular walls at different seasons and the amount of xylane and cellulose and of lignin retained respectively varies accordingly. Hence in considering the felling periods most favourable to timber durability attention must be paid to the stages of ring development for the year and to the condition of the sapwood.

In the case of buried wood the constant degree of temperature and moisture content in the soil would in many cases serve to check the ravages of destructive organisms by preventing hydrolysis of the fungicidal elements.

RAPID METHODS OF TIMBER SEASONING. — At the present time there is a growing tendency to give up timber seasoning methods which are based on purely natural processes or to retain them exclusively for wood used for special kinds of cabinet making or carpenter's work. For all ordinary purposes and for practically all kinds of timber for some time past it has been customary to utilize special drying kilns both for logs and for timber in barks or otherwise prepared for the trade. By this method seasoning is effected very rapidly and is sufficiently complete for most practical purposes. Kiln drying has also been supplemented by the use of other methods based on electrical processes and ozonisation. These forms of subsidiary treatment increase in certain kinds of timber capacity for capillary absorption, which is particularly useful when deeply penetrating impregnation is desired and they also in some cases promote hardening. According to the experts the best results of all are given by the moist heat method which consists in causing warm air charged with steam at less than saturation point to circulate in the drying chamber.

CHEMICAL PRESERVATIVE TREATMENT. — Preservation against rotting can be brought about by rendering the timber impermeable and by impregnation with antiseptic salts or oils. A combination of these principles would undoubtedly give the best results but, as will be seen, there are a good many difficulties to be overcome in practice.

For external proofing various materials, such as varnishes, are used which are spread over the surface and when dry form a layer which is almost impermeable by air and water. Experience however shows that no kind of varnish can maintain a continuous resistance to alternating heat and damp and this treatment affords no guarantee against deep cracking in timber that is not thoroughly seasoned.

Both mechanical and chemical difficulties are encountered when any deep seated impermeability is required on account of the density of the liquids employed, which also give very different results according to the quality of the timber treated. In certain cases preservatives which might have been expected to give a speedy fixation as a result of oxidation have been the cause of reactions within the timber, which have gradually broken down entirely their protective qualities.

The actual behaviour of preservatives, etc., within the wood depends in the first instance on their physical relation to the histological elements with which

they are brought into contact. Professor MOLL, (Germany) is of opinion that in all probability these preservatives find themselves within the timber tissues in a condition of incorporation or of purely mechanical adhesion and this condition would appear to be that which is best adapted to maintain their specific properties of protection against harmful influences of external origin. At the same time this simple adherence renders them liable to far reaching processes of transformation, which in time may make them quite as much harmful as protective agents.

For example bichloride of mercury, after drying, tends to become lodged in very thin layers on the outer side of the cellular walls. This salt, which is in itself highly antiseptic, may become transformed into oxychloride of mercury in the upper layers of the timber treated under the influence of sunlight. As oxychloride of mercury is practically insoluble the quality of impermeability may become intermittent. Trials made by M. KOBBE (United States) show that sulphur brought to melting point, which is absorbed to a considerable depth by most kinds of timber, remains well distributed in the lower layers, though it crystallizes immediately in the outer layers when the temperature of the melted sulphur falls to about 120° instead of the maximum of 140° - 150° C. In this instance the preservative acts in quite different ways during the time when it is used for preservative treatment. Again naphtha oils and their derivatives when introduced into timber as preservatives become transformed in course of time into highly volatile elements and thus lose entirely their antiseptic properties.

The later behaviour of the preservatives inside the wood is affected not only by the conditions of temperature and of humidity of the locality where the treated timber is utilised but also by its reactions to other influences, such as acceleration of the dilution of the preservative material and the shock accompanied by compression to which, e. g., railway sleepers are subjected.

As a result of high temperature, shock, etc. arsenical salts used in the treatment of sleepers may be transformed into arsenious acid, which is injurious to the wood. Efforts have been made to safeguard against this transformation by treating with saccharine but recent experiments have shown that the secret of effective preservation lies in the closest possible incorporation of the antiseptics in the constituent tissues of the timber. POPHAN and KAMESAN, members of the timber preservation branch at the Forestry Research Institute at Dehra-Dun, have recently issued a report on the experiments made on the question of the influence of the fixation of antiseptic material on Indian hard-woods such as are generally used for railway sleepers. For these hardwoods, which are particularly liable to lose the preservative through washing out during the monsoon period, chief reliance is placed in the use of limited quantities of toxic salts, readily absorbed by the sapwood. The importance of fixation in the woody tissues is very clear.

Experiments to ascertain the effects of shock on the leaching of antiseptic substances were carried out and are described by the officers named.

The actual preservative employed being generally the same in all cases, it was only necessary to ascertain the resistance to leaching given by different pro-

cesses. For purposes of the experiment the "Powell", "Falkamesan" and "Z. M. A." processes were compared.

The former chiefly consists in prolonged heating under ordinary pressure with immersion in a solution containing arsenic and saccharine. In the Falkamesan process the wood was injected under pressure with an arsenical solution, in the Z. M. A. process metarsenite of zinc was used. The wood samples after treatment and drying were placed in receptacles containing distilled water and shaken by a special machine, giving an average of 10,000 oscillations per hour. Two hours of this treatment were given and then the samples were left to soak in water and shaken for about 12 hours. After complete drying the process was repeated twice, care being taken to ascertain the amount of arsenite washed out after each 20,000 shakings. The results after three consecutive treatments were as follows:—

Timber species	Percentage of arsenic washed out by each of the three processes		
	Falkamesan	Powell	Z. M. A.
<i>Shorea robusta</i>	3	33	23
<i>Albizzia procera</i>	2	37	30
<i>Pinus longifolia</i>	2	61	61
<i>Abies pindrow</i>	1	27	40
<i>Terminalia tomentosa</i>	3	33	32
Average	2	38	37

These figures show the superiority of the Falkamesan process over the others. Even after 60,000 shakings, over 95 % of the originally injected arsenic remained in the wood without washing out.

CUMMINS (Australia), although admitting that there is a practically constant relation between the percentage of washing out of the antiseptics and local rainfall, calls attention to the fact that in areas with constant humidity, sleepers treated with preservative showed a higher degree of resistance to lixiviation than that of sleepers used where temperature and humidity are constantly varying.

It may be possible to obtain a lengthened period of effectiveness for injected preservatives by increasing the quantity, which would be an expensive expedient, or preferably by using substances having a high degree of toxicity, so that their action, even when used in quite small amounts will be very strongly marked.

In this connection CONNERADE (France) is of opinion that in the oils generally used for impregnation the amount of phenols with low volatility and low water-solubility should be increased. Phenols having these characteristics are available and already in use. Naphthaline is quite unsuitable as a lasting preservative and has also proved unsatisfactory for closing pores and to it non-volatile materials which can readily be transformed into solid forms as a result of oxi-

dation are to be preferred. These include asphaltenes, certain phenols and oils of resin, or else nitrogenous substances such as resinamins, which are all very highly toxic.

CONNERADE puts in a plea for a much extended use of very simple impregnation processes, since impregnation with oils produced at high temperature and under high pressure are the cause of distortion or of the weakening of certain qualities of mechanical resistance. At the same time the relatively high cost of the more complex processes is out of proportion to the value of the results obtained.

It has also been observed that the preservative qualities of certain antiseptic substances tend to increase the longer they remain in the wood as a result of dispersion and the reactions that are set up in the colloidal matter. STAMPA (Italy) calls attention in this connection to the behaviour of sulphur, which when absorbed or in any way becoming fixed in plant tissues may in contact with xylane or cellulose become super-activated, setting up a slow and gradual process of transformation into products at a lower state of oxidation, thus becoming a powerful agent for preventing the growth of saprophytic funguses. Preservatives with a high degree of toxicity are likely to give as good, if not better, results than arsenical salts or mercury bichloride. Hence it is desirable to utilize certain thallium salts which can be extracted at a very low cost from the refuse of pyrites used in the manufacture of sulphuric acid and also uranium salts derived from pitchblende after the extraction of radium.

Recent experiments made by the French Commission for the study of tree pests have shown that good results are given by mixtures of different sulphates as preservatives against *Merulius*. The experiments made by the Commission confirm the view that in the future the use of certain phenols, which have already been identified and combine a high degree of toxicity with a marked capacity for fixation, will play a very important part in the technique of wood preservation. Mixed with fluoride of sodium, in the proportion of 2-4 dinitrophenol and dinitrocresol have proved extremely serviceable. In any case in considering the use of fluorides it would seem highly desirable to discover the best means of treating timber with fluosilicate of barium, which has highly toxic characteristics and would not tend to weaken the mechanical resistance of the wood as is the case with sodium fluoride.

CAMINATI (Italy) is of opinion that it is of great importance to make a new departure in the methods of preserving telegraph or any other form of poles used for the transmission of electricity and to use deep injections of an antiseptic alloy which would remain in the first place as a mass in the heart of the wood and afterwards reach the outer surface by diffusion, thus passing through every part of the balk treated.

This principle was put to practical use for the first time by BRÉANT (France) and the process was improved later with considerable ingenuity till it was given partial effect though such processes as that of GIUSSANI (Italy), which consists in freeing the timber of all obstructing gases and liquids so as to allow the free passage of the preservatives to the heart of the wood. In actual practice however no very deep penetration was obtained, though BRÉANT following this plan suc-

ceeded in bringing about penetration by the DARCET fusible alloy. For some time past a method of deep injection has been used in Austria, the chief feature of which is the introduction of a toxic paste into timber at different depths by means of injections made with a powerful syringe. This process has been particularly successful, not merely as regards the lasting nature of the immunity conferred but also by this means it is possible to limit treatment to those parts of the wood which are the most liable to fungus mischief. This method possesses the additional advantage that treatment can be renewed as found necessary without previous removal of the sleeper, etc. Diffusion of the preservative will be relatively slow for wood or for the parts thereof that are buried in the ground, for the circulation and proportion of humidity in underground timber is mainly governed by the temperature which is more constant and as a rule lower in the inferior soil layers than in those at the surface.

As the main considerations justifying the adoption of any particular method of preservation are cheapness and quick results, the selection is largely influenced by the possibility of finding available on the spot the particular preservatives required without the necessity for importation from outside. For this reason large use is still made of certain processes which appear technically to be somewhat out of date. In recent studies of the question however this point has been carefully borne in mind. As already stated, every effort is made to utilise the by-products of various industries or of substances not hitherto used but locally available, so as to make the older preservatives go further and in this connection it would seem that in the future sulphur will be found a very valuable agent. KOBBE, who has personally observed certain experiments followed by practical tests which have recently been carried out in America, states that the results have been distinctly encouraging. Some beams of different kinds of timber were placed in tanks containing ordinary sulphur melted at a temperature of 140°-150° and left for 5-6 hours or longer according to the quality of the wood treated. Afterwards the temperature was reduced to 120-125° and the beams remained for a further period of 4-5 hours, thus completing the treatment. During the course of these experiments it was observed that the high specific gravity of the timber, which is generally a hindrance to any deep penetration by preservatives, did not affect the absorption of the melted sulphur. KOBBE gives the following list of the percentage of sulphur absorption in relation to specific gravity as shown by 7 different kinds of wood: Red oak 60 % - Californian red wood 50 % - Cypress 60 % - Fir 64 % - Scots Pine and Sugar Pine 75 % - Poplar 76 %. Furthermore the presence of sulphur in the timber generally tends to augment its toughness, for example, the power of resistance to crushing in Californian pine rose from 3,500 to 5,800 lbs. as a maximum load per square inch.

The above will show that timber preservation methods are making sound progress and it seems probable that the various processes will be greatly simplified while at the same time they will be made more effective and that at lower cost compared with the methods formerly in vogue.

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Miscellanea.

THE CONGRESS OF THE INTERNATIONAL UNION OF FORESTRY RESEARCH INSTITUTIONS was held at Nancy (France) from 5 to 10 September 1932, with M. GUINIER, Director of the National School of Waters and Forests and of the Nancy Research Station as President. The Congress received support from thirty-five Countries and those actually represented on the occasion were the following: Australia, Belgium, Canada, Cyprus, Czechoslovakia, Denmark, France together with French North Africa and Morocco, Finland, Germany, Great Britain, Greece, Hungary, India, Italy, Japan, Latvia, the Netherlands, Nicaragua, Nigeria, Palestine, Poland, Rumania, Spain, Sweden, Uganda, United States of America and Yugoslavia.

The chief subjects discussed included: Methods to be followed at experiment centres from the point of view of a unification in the methods of studying particular species and forests – Organisation of the collection and inspection of forest seeds – Unification of the titles of research stations and of pedological nomenclature – Nomenclature of the different types of humus – Establishment of an international bibliography of forestry.

The principal decisions adopted during the course of the Congress by the International Committee of the Union regarding its future activities and membership were the following:—

The next Congress of the International Union of Forestry Research Institutions will take place in Hungary in 1936. The following modifications were made in the Statutes: the number of members of the Permanent Committee was increased to eight, the outgoing President being maintained *ex officio* as a member of the Permanent Bureau until the end of the year after the conclusion of the next Congress.

The Permanent Bureau of eight members for the period 1 January 1933-31 December 1936 will have as its President M. ROTH (Hungary) and as its Vice-President M. MUNNS (United States).

The International Committee decided to nominate a special Commission, consisting of 3 persons, to consider the question of the unification of the methods of describing forests and of conducting forestry research.

The special Commission for Bibliography was also appointed for the period 1933-36 with a membership of five persons. In this connection and with a view to a general diffusion of the knowledge of current forestry literature, the Committee recommended that each Country should furnish information regarding original articles, books, etc. immediately after their publication, together with the full titles in the original language, and also, where necessary, translated into English, French, or German. The Country concerned should at the same time give in each case the classification number in accordance with the system adopted for international forestry bibliography. These references should be reproduced in a number of copies sufficient for a three-monthly supply to each of the adhering countries in exchange for its own similar references.

Each Country should then publish in its own language the collection of the bibliographical notices thus received. At the same time the Congress desires that each Country should select some individual or institution to undertake the issue of the references to the national literature on forestry and the arrangement of the proposed exchanges.

The International Committee also considered the question of the combination of the Congresses of the Union with International Forestry Congresses and decided that, while maintaining its complete independence and purely by way of experiment, steps should be taken to arrange for the holding of the Union's own Congresses and of the International Forestry Congresses in the same countries and places and at approximately the same periods. If the International Institute of Agriculture consents, this arrangement will come into force for the first time in 1936.

The following resolutions were passed by the Congress:—

Description of Stations: — The Congress decided: (1) That the two schemes prepared for cold and temperate regions and for the Mediterranean area require to be completed by the scheme to be presented by the Dehra Dun Institute (British India) for tropical regions; (2) That the three schemes shall be sent to the Permanent Bureau of the Union, by which, after approval, they shall be sent to the various research institutions.

Provenance of seeds. — The Congress resolved: (1) That the research stations should continue to exchange seeds for the purposes of their experimental work through the agency of the Office of the Secretary General of the Union; (2) That the Governments should be requested, while retaining complete liberty in regard to the organization of control in their respective countries, to accept the international rules for guaranteeing proper control and place of origin.

Methods adopted for testing the seeds of forest trees. — In this connection the Committee adopted the resolution of the first Section, which was thus worded: The International Committee should consider the desirability of holding, at the time of the next Congress, a sectional meeting, at which each State or Country should give a brief account of the best methods for testing forest seeds adopted in such country and make whatever suggestions it may consider desirable in reference to the effectiveness of the methods followed.

It would be extremely valuable if each Country would prepare a brief report, to be sent to all the other Countries for consideration and observations before the next Congress. It would then be possible for the Congress at its next meeting to consider in all its aspects the question of the establishment of uniform seed testing methods. The forthcoming Congress should therefore have this matter on its Agenda.

Tapping. — The Congress desires to draw the attention of the Governments of the Countries interested in the production of resin to the fact that it is undesirable to practice tapping without previous or at least simultaneous experiment work, which should in all cases be carried out by the Forestry Research Institutions. In this connection it was resolved :—

(1) That after consultation with the institutions concerned, the Permanent Bureau should carry out a comparative study of the various methods that are being followed with a view to the establishment of uniform rules for this branch of research.

(2) That an exchange of experts' reports should be arranged with a view to extending the knowledge of the results obtained.

Timber tests. — In view of the diversity of the methods at present in use on timber testing, both physical and mechanical, which make it very difficult to institute comparison between the results obtained in the different laboratories, the Congress recommends :—

(1) That the question of a standardisation of methods and of the mode of presenting numerically the results obtained should receive special consideration by the Research Institutes belonging to the Union ; (2) That the question should come up for discussion in the next Congress with a view to bringing about some measure of uniformity.

Morphological, physiological and ecological studies. — The Congress recommends : That the Research Stations in the areas concerned should devote special attention to the study, from the point of view of morphology, physiology and ecology, of the root-systems of the chief types of forest trees, more particularly in connection with dry, sub-tropical and tropical environments.

Nomenclature of humus layers. — The fifth section of the Congress accepted unanimously the classification proposed by M. BORNEBUSCH (Denmark) in regard to the nomenclature to be used for humus layers, which is briefly as follows : (1) A distinction must be drawn between the two chief types of humus : « mull » (vegetable humus) and « mor » (acid humus) — (2) « mull » consists of a single layer only and there are two sub-types : the true « mull » in largish lumps and superficial « mull » — (3) « mor » is in two layers : (a) the fermentation layer ; (b) the humified layer which in turn is of three kinds : fine humus, coarse humus, and fibrous humus.

Study of podsolized soils. — Having regard to the importance of the study of podsolized soils, particularly of those which have a layer of hard pan, and the desirability of discovering the best methods of bringing them under cultivation, the Conference decided to nominate a special Commission of 11 members to make a special study of this question.

(Based on report in *Revue des Eaux et Forêts*, Paris, 1932, N. 10).

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(1) Previous list September 1932. To be continued March 1933.

(2) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); étr. (foreign price); hebdom. (weekly); int. (home price); irr. (irregular); mens. (monthly); N. S. (new series); q. (daily); sem. (half yearly); s. (series); v. (volume); trim. (quarterly).

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DISCOVERIES AND CURRENT EVENTS

COFFEE:

- CACAO:

- CLOVE:

- PEACH:

- APPLE:

- VINE:

- Mon. 7 Ingl.

MULBERRY:

- Powdery mildew. **Ovulariopsis moricola* Del.
 Leaf rust **Sphaerella Mori* Tuck.

ACACIA (*A. decurrens*, *A. normalis* and *A. mollissima*):

- Wilt ?

ALBIZZIA (*A. Lebbeck*):

- Rust *Sphaerophragmium Acaciae* Cke.
 Rot ?
 Gummosis ?

OAK:

- Mildew *Microsphaera alphitoides* Griff. et Maubl.

MANIOC:

- Cercospora Cassavae* Ellis et Everhart
 Rot *Phellinus*.
 Mosaic Virus disease.

VANILLA:

- Anthrachnose **Calospora Vanillae* Massee
Glomerella Vanillae (Zimm.) Petch
 Brown stem spot *Nectria Vanillae* Zimm.
 Leprosy *Cephaleuros Henningsii* Schmidle
 Rot *Fusarium*?

SUGAR CANE:

- Red rot. **Colletotrichum falcatum* Went.
Coniothyrium Sacchari (Mass.) Prill. et Del.
Leptosphaeria Sacchari van Breda.
 Rot *Dictyophora multicolor* Berk. et Br.

RICE:

- Rhaphicarpa longiflora* Benth. ?
 **Eichornia crassipes* Solms

MAIZE:

- Rust *Puccinia Maydis* Bér.

CASTOR OIL:

- Rust *Melampsorella Ricini* (Biv.) Bern.

COCONUT:

- Sooty mould **Pestalozzia Palmarum* Cooke
?

GROUNDNUT:

- Rot *Sclerotium Rolfsii* Sacc.
Leaf spot **Cercospora personata* (B. et C.) Ell.
Rosette Virus disease. Probably spread by *Aphis leguminosae* Theo. occurring in Madagascar.

TOBACCO:

- Mildew **Erysiphe Cichoracearum* DC.
Mosaic *Virus disease.
'Boka' (Leprosy) Malformation of the leaves, cause unknown.
Root swellings Eelworms.

BASIL:

- Rust Aecidium stage

ANDROPOGON MARTINI:

- Rust Uredo stage

BEAN:

- Rust *Uromyces appendiculatus* (Pers.) Lév.
Isariopsis griseola Sacc.

CELERY:

- Leaf spot *Septoria Apii* (Br. et Cav.) Rostr.

POTATO:

- Collar rot Bacterial disease ?

TOMATO:

- Leaf mould *Cladosporium fulvum* Cooke.

AUBERGINE:

- Rust Aecidium stage on the leaves and fruits.

ROSE:

- Mildew *Sphaerotheca pannosa* (Wallr.) Lév.

DAHLIA:

- Entyloma Dahliae* Syd.

The asterisk denotes the parasites which had been reported in Madagascar before the writer's arrival (October, 1929). The others have not to the writer's knowledge been reported previously.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Algeria. — By Decree of the Governor General dated 12 January 1932 the Decree of 24 August 1931 regulating importation into Algeria of plants belonging to the Aurantiaceae coming from Morocco is annulled and replaced by the following regulations:—

Importation of plants of the Aurantiaceae from Morocco shall be effected under the following conditions:—

Plants imported by sea must be accompanied by a copy of the commercial invoice or, if they have not come from a State controlled establishment, by a declaration from the consigner stating the nature, number, kind of rootstock and variety of graft.

The consignment must be accompanied by a certificate of official phytopathological inspection specifying that the plants are not carrying *Lepidosaphes gloveri* or *Ceroplastes sinensis*.

Consignments of plants belonging to the Aurantiaceae imported from Morocco will further be subject to the provisions of Articles 3, 4, and 5 of the Decree of 14 February 1922 concerning the plant sanitary policy of Algeria.

Importation into Algeria by land is subject to the production of the same documents. The plants will in accordance with the importer's wish be sent by the custom service to Oran, Tlemcen, Perrégaux, Mascara or Sidi bel Abbès for inspection, on recommendation by the same Service, by the local officer of the Crop Protection Service or of the General Agricultural Service under the conditions of Articles 3, 4 and 5 of the Decree of 14 February 1922. They will travel under a custom house permit involving an undertaking to present the packets of plants sealed by the custom house on entry into Algeria to the officials of the Crop Protection Service or General Agricultural Service in order to guarantee their identity. The charge for sealing will be settled by the custom house at the time of sealing and will be borne by the importer.

Any importer failing to present packages to the officials responsible for sanitary inspection will be deprived in the future of the right to import plants into Algeria, and that without prejudice to the penalties provided in Article 471, § 15 of the penal code.

Any of the goods in question which shall circulate without the above-named documents, and, if they are plants imported by land, without being sealed, will be seized and impounded in accordance with the provisions of Article 11 of the Decree of 14 February 1922, without prejudice to the other penalties provided in this text. (*Journal Officiel de l'Algérie*, Alger, 29 janvier 1932, p. 65-66).

Germany. — The Ordinance of 2 February 1932 with a view to preventing introduction of diseases and pests of elms and Canadian poplar forbids until further notice importation of plants of *Ulmus* and *Populus canadensis*, also of cuttings, suckers, slips for grafting and other fresh parts of these trees. The

transit of such plants and parts of plants is allowed under supervision of the custom offices.

Until further order importation of other deciduous trees, also of cuttings, suckers, slips for grafting and other fresh parts of such trees will be allowed only if consignments are accompanied by a certificate from the Phytopathological Service of the country of origin stating that they have been inspected and contain no plant or part of a plant of *Ulmus* or *P. canadensis*. (*Reichsgesetzblatt*, Teil I, Berlin, den 15. Februar 1932, Nr. 10, S. 63).

Germany (Bremen) (1). — By Ordinance of 23 February 1932 the destruction of thistles has been made obligatory. The work must be carried out each year before the flowering period and must extend to pasture, roads, railway embankments, ditches and all waste land, as well as to fields if it can be effected without damage to crops. The authorities will supervise the work. A first inspection will take place between 5 and 15 July, a second towards the end of August of each year.

Germany (Hamburg) (1). — By Notification of 25 February 1932 holders of apple orchards in the communes of Finkenwärder and Moorburg are obliged to treat the trees against the apple leaf sucker (*Psylla mali*) and apple scab (*Fusicladium dendriticum*) in the following manner:—

Before the buds open all apple trees must be sprayed with at least an 8 % solution of 'Obstbaumkarbolineum' of a brand recognised by the competent authorities.

At least three days after this treatment the trees must be sprayed with a lime-copper mixture at 1-2 % or with an equivalent preparation recognised by the competent authorities.

In case of failure to comply with these regulations the police is authorised to carry out the necessary work at the defaulter's expense.

Germany (Mecklenburg-Schwerin) (1). — The Ordinance of 27 January 1932 for the control of woolly aphids of the apple (*Eriosoma lanigerum*) obliges owners and holders of apple orchards to undertake a thorough cleaning of them during the winter and to destroy at latest before 15 June of each year every colony of woolly aphids that is found. New colonies which appear later must be destroyed as soon as possible by treating affected parts by an effective method. Trees of which there is no hope of successful treatment must be cut down and their surface roots removed. It is forbidden to transport apple trees from orchards infested with woolly aphids.

The police are responsible for inspection of apple trees in collaboration with experts. If the persons concerned fail to fulfil these obligations the police are authorised to carry out the necessary work at the defaulter's expense.

(1) Communication from the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, official correspondent of the Institute.

Belgium. — A Ministerial Decree of 18 April 1932 provides as follows:—

Art. 1. — Importation into Belgium of tubers or plants of potatoes, of fruits or plants of tomatoes and of aubergines grown in or coming from France is forbidden.

Art. 2. — Importation of such products grown in or coming from countries other than France is allowed only if consignments are accompanied by a certificate issued by the Phytopathological Service of the importing country indicating the country of origin of the products and stating that they were grown in a region free from Colorado beetle [*Leptinotarsa decemlineata*].

In order to be considered as coming from such a region the products must have been cultivated and packed in a place situated more than twenty kilometres from any crop infested with the Colorado beetle.

Art. 3. — Importation of consignments coming by sea may be allowed only by the custom houses of Antwerp, Bruges, Brussels, Gand, Liège, Ostend and Zeebrugge, and those coming by land by a custom house situated on a railway or by one of the following:— Arendonck, Baerle-Duc, Bouchaute, Canne, Coewacht (Moerbeke), Esschen (Village), Houcke, Kessenich, Kieldrecht, Kruisstraat (Moerbeke), La Clinge (Village), La Planck (Fouron-Saint-Martin), Mae-seyck, Meersel (Meerle), Middelbourg, Molen-Beersel, Mouland, Oudenburgsche Sluis (Wachtebeke), Overslag (Wachtebeke), Paal (Kemseke), Petit-Lanaye (Lanaye), Pont-de-Paille (Maldegem), Putte (Stabroek), Saint-Laurent, Sainte-Marguerite, Santvliet, Schapenbrug (Westcappelle), Smeermaes (Lanaeken), Strijbeek (Meerle), Vroenhoven, Watervliet and Wuestwezel.

Art. 4. — Consignments not accompanied by the certificate prescribed in Art. 2 will be returned unless inspection by the Belgian Special Phytopathological Service, carried out at the importer's expense, shows them to be free from the Colorado beetle.

Art. 5. — Any grower or holder of potatoes, tomatoes or aubergines who finds the Colorado beetle to be present is required immediately to inform the communal Burgomaster who will notify the Minister of Agriculture by telegram.

Art. 6. — Any infringement of the foregoing regulations will be punishable by the penalties provided in Art. 21 of the Royal Decree of 15 May 1929. (*Moniteur Belge*, Bruxelles, 22 avril 1932, 102^e année, n^o 113, p. 2235-2236).

Cyprus. — *The Cyprus Agricultural Journal*, Nicosia, 1932, Vol. [XXVII, Part I gives on pages 5-16 an abstract of the legislation at present in force in Cyprus dealing with plant pests and diseases.

Hungary. — Ordinance No. 47000/1932 of 8 April 1932 contains regulations governing the commerce in insecticides. 'Special' and 'ordinary' preparations are distinguished. A list annexed to the Ordinance enumerates 32 common insecticides, their uses and required qualities. Commerce in these insecticides is allowed only under the designation 'ordinary' which they are termed in the list, and with indication of the uses and properties required in the said list.

Commerce in the special preparations is allowed only with authorisation from the Ministry of Agriculture.

The Ordinance contains regulations concerning the conditions of authorisation for sale, the constitution and functioning of the Plant Protection Bureau responsible for inspecting all home and foreign insecticidal products. This Bureau is also responsible for keeping an up-to-date list of all makers of and traders in such products.

A Plant Protection Council for giving advice concerning the value of the various preparations will be formed as from 1 August 1932 (*Földművelési Értesítő*, Budapest, 1932., aprilis 25, XLII. évf., 8. sz., 71-75. o.).

* * In conformity with the Decrees and Laws relating thereto the Minister of Agriculture gives in Decree No. 48563/1932 IX.2 of 27 April 1932 a list of the countries where the following diseases have been observed: —

Chrysophlyctis endobiotica (= *Synchytrium endobioticum*): Germany, Poland, the Netherlands, Switzerland, Denmark, Czechoslovakia, Belgium, Austria, France, Great Britain, Finland, Norway and Sweden.

Leptinotarsa decemlineata: United States and France.

Phthorimaea operculella: Southern Europe, Algeria, Cape Colony, California, Australia, Azores, Tasmania and New Zealand.

Epithrix cucumeris: North America. (*Földművelési Értesítő*, Budapest, 1932., május 10, XLII. évf., 9. sz., 90. o.).

* * The Decree of the Minister of Agriculture No. 48600/1932 of 2 May 1932 orders the obligatory destruction of cockchafer (*Melolontha melolontha*) in view of the expected serious invasion of these insects.

The chief local administrative officials will supervise the putting into effect of the prescribed measures, will apply them personally in the communal territories and where necessary will make use of school children. (*Földművelési Értesítő*, Budapest, 1932., május 10, XLII. évf., 9. sz., 88. o.).

Italy. — By Ministerial Decree of 7 March 1932 the Commune of Guardiaregia in the province of Campobasso has been declared infected with grape phylloxera. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 17 marzo 1932, anno 73°, n. 64, p. 1317).

* * By the Royal Decree-Law No. 369 of 19 March 1932 full and entire effect was given to the Tariff Agreement between Italy and Austria and to the two supplementary articles of the Italo-Austrian Commerce and Navigation Treaty of 28 April 1923, settled at Rome on 18 February 1932.

According to Art. 4 of the Tariff Agreement 'as regards the transit of animals and animal and plant products the provisions of the Special Agreements in force between the High Contracting Parties will continue to be applicable'.

'In the reciprocal traffic referred to in the present Agreement sanitary regulations, as far as possible uniform, will be applied to the disinfection of the goods

transported and the means of transport. The same will apply to the other preventive measures against infectious diseases of man, animals and plants' (Art. 5).

According to the first supplementary article of the above-named Treaty the Austrian Republic foregoes among others the treaty dues fixed for the following item in the Italian tariff: 692 *h*) Copper sulphate.

It foregoes also taking advantage of the following item: 'ad 692 *h*) — Under this number enter preparations having a copper basis for control of plant diseases'.

The Kingdom of Italy foregoes among others the treaty dues fixed by the above-named Treaty for the following item on the Austrian tariff:—

ex 602 *a*) 503-*a*) 1 Copper sulphate and preparations having a copper basis for the control of plant diseases.

(*Gazzetta Ufficiale del Regno d'Italia*, Roma, 27 aprile 1932, anno 73^o, n. 97, pp. 2000-2003).

*** By Ministerial Decree of 13 April 1932 the prices of public sale of the following tobacco bi-products have been reduced in varying degree: normal tobacco extract, superior tobacco extract, sulphate of nicotine. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 2 maggio 1932, anno 73^o, n. 101, pp. 2079-2080).

Morocco (French Zone). — By Decree of the Director General of Agriculture, Commerce and Land Settlement dated 30 March 1932, to the list of vertebrates specified in Art. 1 of the Decree of 1 March 1930 determining the vertebrates for whose destruction the substances included in the Table A annexed to the Dahir of 2 December 1922 may be utilised, has been added the name 'sparrows'.

Art. 2 of the Decree of 1 March 1930 is completed in the following manner: —

'Poisoned bait intended for the destruction of sparrows may be used only in the conditions defined by Decree of the Chief of the district which will indicate in particular the periods during which it may be used and the places where it may be placed.

'The people must be notified of these periods and places seven clear days before the poisoned bait is set down and to this effect the necessary indications must be affixed or cried in the public places and markets of the tribes concerned.

'Bait intended for the destruction of sparrows must be placed in positions inaccessible to poultry. When placed on the ground it must be surrounded by a wire netting fence with a minimum height of 1 metre and with a mesh not exceeding 3 centimetres.

'At the close of the periods specified in the above-named conditions the bait must be removed and buried at a minimum depth of 0.5 m.' (*Empire Chérifien. Protectorat de la République Française au Maroc. Bulletin Officiel*, Rabat, 8 avril 1932, XXI^{ème} année, n^o 1015, p. 392).

*** A Vizirial Decree of 18 April 1932 (11 *hija* 1350) contains regulations governing in the following manner control measures to be taken against fruit flies in the French zone of the Sheriffian Empire:—

Art. 1. — The provisions of the present Decree are applicable to all stages of: (1) the Mediterranean fruitfly (*Ceratitis capitata* Wied.), commonly known

as 'mouche des fruits', 'mouche des oranges', 'mouche des pêches', etc.; (2) the species of the family *Trypetidae* which shall be specified by Decrees of the Director General of Agriculture, Commerce and Land Settlement.

Art. 2. — The plant species to which the following prescriptions are applicable will be fixed by Decree of the Director General of Agriculture, Commerce and Land Settlement.

Art. 3. — Within the meaning of the present Decree and of those which shall be promulgated for giving it effect, by the term 'fruit' shall be understood the organ containing or bearing the seeds produced by any wild or cultivated plant and particularly by plants of the orchard and vegetable or ornamental garden.

Art. 4. — In order to prevent and where necessary check damage by the above-named flies to the plant species and fruits to which the present Decree refers, land owners, farmers, planters, share tenants, tenants, usufructuaries, agents, native groups, administrators of State and municipal estates, of public establishments and 'habous' property, persons occupying or farming, under any kind of title, land, even that attached to dwelling houses or serving as gardens, on which are cultivated or found the plant species referred to in Art. 2, are required to carry out the measures that shall be prescribed by Decree of the Director General of Agriculture, Commerce and Land Settlement, and in particular to: (a) destroy fallen fruit; (b) gather fruit still on the tree and destroy or sterilise it; (c) apply poisons-bait sprays and use traps.

Decrees of the Director General of Agriculture, Commerce and Land Settlement will fix the cases and conditions in which these operations shall be carried out.

The foregoing regulations apply to the properties specified even when these are situated within the boundaries of towns and centres.

Art. 5. — Dealers, owners or managers of storehouses or packing sheds, owners or managers of factories utilising fruits and, in general, any person storing or holding fruits whether for his own or others' purposes, are required to carry out all the control or preventive measures ordered by Decree of the Director General of Agriculture, Commerce and Land Settlement, these including where necessary the destruction of fruit.

Art. 6. — Persons infringing the regulations of the present Decree and of those which shall be promulgated for giving it effect will be ordered by the officials of the local control authorities or by the chiefs of the municipal services to carry out the control or preventive measures within 48 hours of the day on which the summons is issued, in default of which the measures will be carried out officially at the defaulters' expense.

The whole without prejudice to the application where necessary of the penalties provided in Art. 31 of the Dahir of 20 September 1927 (23 rebia I 1345). (*Empire Chérifien. Protectorat de la République Française au Maroc. Bulletin Officiel*, Rabat, 1932, XXI^{ème} année, n° 1018, p. 499-500).

* * * A Decree of the Director of Waters and Forests, dated 14 April 1932, authorises owners or holders of land included within certain zones of the Circle of

Loukkos (Ouezzan) to destroy on their land, by any means excepting fire, rabbits which are damaging their crops.

Rabbits killed in these conditions may not be transported, hawked or sold in any place whatever.

The present Decree shall carry effect until 3 September 1932, the last day of the close season for 1932. (*Ibid.*, p. 505-506).

Switzerland (Canton of Vaud). — The Law concerning the growing of tree fruits, which was approved by the Grand Council of the Canton of Vaud on 22 March 1932 and came into force on 6 April following, rules *inter alia* that fruit trees must receive the care necessary to protect them from animal and plant parasites (particularly from mistletoe [*Viscum album*] and woolly aphids [*Eriosoma lanigerum*]) the development of which might be a danger to neighbouring fruit trees.

On request of or on information from the Cantonal Commission for Fruit Trees the Council of State may make obligatory in certain regions of the country the control of one or more parasites of fruit trees. The communal authorities may decide to make obligatory within the territory of the commune the control of one or more parasites of fruit trees.

In cases when fruit trees are parasitised to the extent of becoming a centre of infection for neighbouring trees the Cantonal authorities may order the treatment or removal of trees at the owner's expense in accordance with the procedure fixed by the present Law.

Togoland (French). — By Ministerial Decree of 13 February 1932 the provisions of the Ministerial Decree of 27 February 1922 regulating control measures against the coffee berry borer (*Stephanoderes*) are made applicable to the products specified in Art. 1 of the said Ministerial Decree if presented for importation into or transit in French Togoland. (*Journal Officiel de la République Française*, Paris, 9 mars 1932, LXIV^{ème} année, n° 58, p. 2529).

* * By Ministerial Decree of 13 February 1932 the provisions of the Ministerial Decree of 3 December 1929 (see this *Bulletin*, 1930, No. 6, pp. 90-91) concerning the protection of cacao plantations in the French Colonies are made applicable to plants, pods and seeds of cacao presented for importation into and transit in the territory of French Togoland. (*Ibid.*).

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end rot, *Phytophthora terrestris*, *Bacterium* sp., cloudy spot, freezing and chilling injury, *Fusarium* spp., *F. Lycopersici*, *Botrytis* sp., *Cladosporium*, growth cracks, *Isaria clonostachoides*, *Phyt. infestans*, *Melanconium* sp., mosaic (mottling), *Macrosporium* Tomato, *Phoma destructiva*, puffiness, *Rhizopus* sp., *Sclerotium Rolfsii*, *Septoria Lycopersici*, *Rhizoctonia Solani*, streak, sulphur dioxide injury, sun scald, *Oospora lactis parasitica*, yellows, on potatoes; *Alternaria* sp., *Colletotrichum nigrum*, blossom-end rot, *Cercospora Capsici*, freezing injury, *Botrytis* sp., *Phytophthora Capsici*, *Pythium De Baryanum*, *Vermicularia Capsici*, *Sclerotium bataticola*, on chillies; *Colletotrichum* sp., *Pythium aphanidermatum*, *Phomopsis vexans*, *Phytophthora terrestris*, on eggplants].

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[The following have collaborated in the preparation of the present volume: F. A. G. MUIR (Introduction); R. H. VAN ZWALUWENBURG (The soil fauna of sugar-cane fields. The nematodes attacking cane roots in Hawaii. Index); O. H. SWEZEY (Records of introduction of beneficial insects into the Hawaiian Islands)].

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NOTES

Sixth International Botanical Congress. — This Congress will be held at Amsterdam from 9 to 14 September 1935. An Executive Committee has been formed, President of which is Dr. F. A. F. C. Went, Professor of General Botany and Director of the Botanic Garden, University of Utrecht.

Twelfth International Zoological Congress. — The XIIth Congress is to be held at Lisbon during 1935 under the chairmanship of Dr. Arthur Ricardo Jorge, Professor of the University of Lisbon and Director of the Bocage Museum.

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

French North Africa: Desert Locust (*Schistocerca gregaria*) (1).

ALGERIA.

- 1 May 1932 — Isolated locusts were driven by violent southerly winds into the communes of Boghari, Corneille, Reibell, Oued Marsa, Aïn-Bessem.
A swarm coming from the S. settled on 400 ha in the douar of Metkaouak (Barika).
A small swarm coming from the S. settled in the douar of Magra (Barika).
A small swarm flying S.-E. was reported 80 km S.-W. of Mecheria.
Hatchings 12 km N.-N.-W. of Ghardaïa.
- 2 » » — Small swarm 40 km S.-E. of M'Sila.
Small swarms on the douars of M'doukal and Ouled Si Slimane of Barika.
A small swarm settled in the douar of Mella (Khenchela) and then departed.
A swarm coming from the S.-W. alighted in the douar of Briket (Mac-Mahon), laid and departed towards the N.-E.
- 3 » » — A small swarm flying N. passed 40 km from Mecheria.
A swarm coming from the S.-W. settled in the douar of Ouled Absi and departed next day towards the S.
A swarm coming from the S.-W. was reported in the douar of Oued Taga (Arris).
A swarm coming from the S.-W. passed over the douar of Ichmoul (Arris).
Hatchings 13 km S. and 5 km E. of El Goléa.
- 4 » » — A swarm coming from the W. alighted in the douar of Melagon and departed on 5th towards the douar of Tamza.
A swarm settled in the douar of Tamza of Khenchela.
A swarm coming from the W. was reported in the douar Bouzina of Arris.
A swarm coming from the S. alighted in the douar of Metkaoua Remel, laid over 300 ha and departed on 5th.

* In this, as in the next chapter, the countries are arranged in French alphabetical order.

(1) Communication from the Government General of Algeria (Direction des Services Economiques) to the International Institute of Agriculture.

- 5 May 1932 — A swarm coming from the W. settled in the douar Chelia of Khenchela.
 A small swarm from the S. at Sidi Aïch, departed towards the S.
 A small swarm coming from the S. alighted in the douar of Bitam (Barika) on 80 ha and departed on 6th towards the N.
 Swarm at 40 km S.-E. of Aumale; departed on 6th.
- 6 " " — A small swarm reported in the commune of Akbou.
 A swarm covering 2 ha settled in the douar of Dra Kebila of Lafayette.
 Some isolated locusts observed over the commune of Sidi-Aïssa.
 Migrating hoppers 10 km E.-S-E- of Ghardaïa.
- 7 " " — A swarm settled in the douar Dra el Caïd of Lafayette. Laying
 A large swarm passed over the douar of Yabous (Khenchela).
 A small swarm 6 km S.-W of Kerrata.
 A large swarm alighted in the douar of Taouzient and departed.
 A small swarm settled in the douar of Bitam (Barika) and laid.
 Migrating hoppers 10 km S.-E. of Ghardaïa.
- 8 " " — A swarm coming from the W. settled on 30 ha in the douar of M'doukal (Barika).
 A swarm coming from the S. settled in the douar of M'doukal (Barika).
 A swarm settled and laid over 3 ha in the douar of Metkaouak (Barika).
 Migrating hoppers 58 km S. and 32 km S. Ghardaïa.
- 9 " " — A small swarm alighted in the douar of Mengada and departed on 10th.
 A large swarm coming from the S.-W. passed 10 km S.-W. of Géryville.
 Various movements of swarms reported from Corneille.
 A small swarm coming from the S. settled 12 km from Kerrata. Copulation.
 A swarm coming from the E. settled in the douar of Zelatou (Arris) and laid.
 Layings over 2 ha at Périgotville.
- 10 " " — A small swarm coming from the S. alighted 23 km E. of Géryville and departed on 11th towards the N.
 Layings over 2 ha in the douar of Metkaouak (Barika).
 Dense layings in the douar of M'Cif (M'Sila).
 Migrating hoppers 40 km N. and 85 km N.-N.-E. of Ghardaïa.
- 11 " " — A swarm 1 km in length coming from the S.-E. settled in the douar of Ouled Sliman (Bou-Saâda) and laid.
 A swarm coming from the S.-E. settled in the douar of Ouled Khaled (Bou-Saâda).
 Relatively large swarms coming from the S. and W. settled 10-29 km S.-E. and E. of Laghouat.

- 12 May 1932 — Swarms coming from the S. laid in the douar of M'doukal over 100 ha.
Laying at M'doukal (Barika).
- 13 " " — A small swarm settled 97 km S.-W. of Géryville.
A swarm coming from the S. settled at Laghouat, region E. to S. Hatchings reported in the douars of Branis and El Outaya (Mac-Mahon).
Migrating hoppers 18 km N.-E. of Ghardaïa.
- 14 " " — A swarm covering 100 ha coming from the S. circled over the douars of Slamates and Sidi Hadjères (Sidi-Aïssa).
A swarm coming from the S. laid over 2 ha in the douar of Bitam (Barika).
A swarm coming from the W. settled in the douar of Kimmel (Arris).
A large swarm coming from the S. alighted 120 km N. (Géryville) and departed on 16th towards the E.
- 15 " " — A medium-sized swarm settled in the douar of Saïda (M'sila) and laid over 50 ha.
Migrating hoppers 13 km S.-E. and 9 km S.-E. of Ghardaïa.
- 16 " " — A swarm alighted in the douar of Ouled Khaled (Bou-Saâda) on 70 ha and departed on 19th.
Laying in the douar of Kimmel (Arris).
- 17 " " — A medium-sized swarm coming from the S.-W. settled in the douar of Marcounda.
A swarm from the N. passed over the douar of Ouled Slimane (Barika).
A swarm from the S. settled and laid over 3 ha in the douar of M'doukal (Barika).
Swarms coming from the S.-W. settled 45-60-75 km W. of Laghouat.
Laying 43 km N. of Laghouat.
- 18 " " — A large swarm coming from the S. settled in the douar of Saïda (M'Sila).
The swarm reported on 14th at Sidi-Aïssa departed towards the S. E.
A small swarm settled 35 km E. of Géryville.
A small yellow swarm alighted 25 km N.-E. of Djelfa and departed on 19th towards the N.
Laying 45-87 km W. of Laghouat.
Migrating hoppers 8 km S. and 9 km. S. of Ghardaïa.
- 19 " " — A small swarm coming from the S. settled in the douar of Bouaiche (Boghari).
A small yellow swarm observed 30 km S. of Charef (Djelfa).
- 20 " " — A swarm coming from the S.-E. settled on 100 ha in the douar of Oued Djenane 12 km S.-E. of Aumale.
A large swarm settled 30 km S.-S.-E. of Aflou.
- 21 " " — Swarms reported passing over the douar of Trouzient (Khenchela).
Slight laying in the douar of Oued Taga (Arris).

- 22 May 1932 — A swarm settled on 20 ha in the douar of Sidi-Aïssa. Copulation.
A swarm settled on 100 ha in the douar of Sidi-Aïssa (Sidi-Aïssa).
- 23 " " — A swarm coming from Tunisia settled at Azel Ben Falia (Tébessa).
A swarm coming from the S.-W. settled 65 km N.-N.-W. of Géryville.
- 24 " " — Swarms reported at Sidi-Aïssa departed towards the W.-E. and N.
Laying over 100 ha.
- 25 " " — A swarm settled and laid over 6 ha in the douar of Ouled Ziam (St.-Arnaud).
A swarm coming from the S. settled 17 km from Aumale over 20 ha. Copulation and laying.
A swarm coming from the S.-W. settled 86-75 km N.-N.-W. from Géryville. Copulation.
Hatchings 43 km S.-E. of M'Sila.
Migrating hoppers 20 km N. of Ouargla.
- 26 " " — Hatchings in the douar of Bitam (Barika).
- 27 " " — A small swarm settled in the region of Colomb-Béchar.
A swarm over Beni Isguen (Ghardaïa).
A medium-sized swarm alighted in the Oued Djelal (Khenchela).
- 28 " " — Swarms settled in the vicinity of Aïn-Dibla (Tébessa).
- 29 " " — Hatchings in the douars of M'doukal and Metkaouak (Barika).

TUNISIA.

- 6 May 1932 — Small swarms 60 km S.-E. of Thala departed towards the N.
- 7 " " — A swarm from the S. alighted 50 km W. of Thala and departed the following days towards the N. and E.
- 8 " " — A small swarm coming from the W. settled 35 km S.-W. of Thala.
Laying 16-20 km N.-W. of Sousse.
- 9 " " — A swarm coming from the S. passed 40 km S.-E. of Maktar.
- 10 " " — A swarm alighted 10-12 km. S.-W. of Bizerta and departed towards the E.
A swarm from the S. settled 40 km. N.-W. of Sousse.
A small swarm was destroyed 40 km S. of Thala.
Laying 40 km N.-W. of Sousse.
- 11 " " — A swarm from the S.-W. settled 35 km. S.-S.-W. of Thala.
- 12 " " — A swarm 46 km N.-N.-W. of Sousse flying W.-N.-W.
A swarm coming from the Kairouan settled 45 km S.-E. of Maktar.
A swarm settled 35 km S.-E. of Maktar.
Laying 55 km S.-S.-W. of Thala.
Hatchings 60 km S.-W. of Sousse of eggs laid on 18 April.
- 13 " " — A swarm passed 13 km S.-E. of Maktar.

- 15 May 1932 — Laying 60 km N.-N.-W. of Sousse.
 17 » » — A swarm coming from Kairouan settled 18 km E. of Maktar.
 20 » » — A swarm settled 18 km E. of Maktar departed towards Siliana.
 25 » » — Hatchings 5 km W. of the frontier in the neighbourhood of the post of Négrine.

MOROCCO.

- 1 May 1932 — A yellow swarm covering 2 sq. km. 36 km N.-W. of Marrakech. Hatchings over 40 ha 16 km W.-N.-W., over 30 ha 12 km N.-N.-E., over 20 ha 2 km N., over 30 ha 5 km S.-W., over 20 ha 26 km W. of Demnat.
 Hatchings 8 km W. of Demnat, 26 km E.-S.-E. and 30 km S.-E. from El Kalaa.
 2 » » — Hatchings over 4000 ha in the region of Tadla and Beni-Mellal.
 3 » » — A yellow and brown swarm covering 4 sq. km 16 km S.-E. of Safi. Swarms 27 km and 29 km S.-S.-W. of Taounat (Fez Nord). Slight laying 29 km S.-S.-W. of Taounat.
 4 » » — A small swarm 15 km S.-W. of Beni Mellal.
 A sparse swarm 18 km N.-E. of Souk El Arba of Tissa.
 Laying over 100 ha 31 km S. and over 225 ha 37 km S. of Marrakech.
 5 » » — Hatchings 26 km S.-E. and 28 km S.-E. of El Kalaa.
 6 » » — A brick red swarm covering 3 sq. km settled 68 km N. of Missouri (East Morocco).
 Hatchings 8 km E. of Beni Mellal.
 Migrating hoppers 14 km E.-N.-E. of Beni Mellal.
 7 » » — A swarm from the S. 42 km S.-S.-E. of Amizmiz.
 A small swarm 19 km W.-S.-W. of Taounat.
 Hatchings 32 km W.-S.-W., 42 km W.-S.-W., 30 km W.-S.-W. and 44 km W.-S.-W. of Demnat.
 Hatchings 16 km E. of Aït Ourir.
 Hatchings 17 km N. and 14 km N.-N.-W. of Zerekten.
 8 » » — Hatchings 26 km E.-S.-E. of El Kelaa.
 9 » » — A swarm settled to the S. of Safi moved to 12 km S. of Safi.
 A very large and dense swarm near Amizmiz.
 A sparse swarm settled 16 km E. of Ghafsai.
 Laying 15 km S.-E. of Amizmiz.
 Laying over 150 ha 36 km S., over 50 ha 37 km S., over 250 ha 39 km S., over 50 ha 41 km S., and over 150 ha 44 km S. of Marrakech.
 Hatchings over 50 ha 30 km W.-N.-W. of Sidi Chiker.
 Hatchings 50 km S. of Tamanar.
 Hatchings 23 km S. of El Kelaa.
 10 » » — A small swarm settled 39 km N.-W. of Taza.
 Laying over 1400 ha 28 km S., over 400 ha 31 km S.-E., over 600 ha 31 km S.-S.-E. of Marrakech.
 Migrating hoppers 11 km E., 14 km E., 13 km S.-S.-E. and 17 km from Tadla.

- 11 May 1932 — Laying over 2500 ha 30 km S.-S.-E., over 1200 ha 32 km S. of Marrakech.
- 13 " " — Sparse swarms 12 km W., 6 km E., 6 km N., 13 km E. and 14 km E.-S.-E. of Ghafsai (62 km N. of Fez).
Hatchings over 50 ha 24 km N.-N.-W., over 100 ha 23 km N. of Zerektene.
Migrating hoppers 20 km S.-W. of Beni Mellal.
- 14 " " — A small yellow swarm settled 7 km S.-E. of Ghafsar.
Laying over 350 ha 23 km S., over 350 ha 32 km S.-S.-W. and over 1800 ha 24 km S. of Marrakech.
Migrating hoppers 30 km S. of Imouzer.
- 15 " " — Laying over 160 ha 38 km E.-N.-E. of Marrakech.
- 17 " " — A swarm covering 1600 ha settled 16 km N.-N.-E. of Amizmiz.
A sparse swarm 56 km N.-W. of Taza. Laying.
A swarm covering 100 ha 23 km S. of Marrakech.
Laying over 600 ha 35 km N.-N.-E. and 44 km N.-E. of Tiznit.
- 18 " " — A swarm covering 20 ha settled 40 km W.-S.-W. of Demnat.
A sparse swarm settled 40 km N.-W. of Taza.
A swarm going N. settled 64 km W.-S.-W. of Ouarzazat.
Laying over large areas in the region of Tiznit.
Laying over 50 ha 5 km N. of Air Ourir.
Hatching over 500 ha 11 km S.-S.-W., over 100 ha N.-E. of Ain-Ourir, over 200 ha 36 km W.-S.-W. of Demnat.
- 19 " " — Hatchings over 250 ha 13 km S.-W. of Air Ourir.
Hatchings in the vicinity of Ksiba at Tadla.
Hatchings over 100 ha 300 km E. of Marrakech
Migrating hoppers 12 km N. of Demnat.
- 20 " " — Hoppers migrating to the S. and E. of Ksiba.
- 21 " " — A small swarm 42 km S.-S.-E. of Amizmiz.
6 small swarms 8 km and 11 km S.-E. of Demnat.
Hatchings over 800 ha 30 km S.-E. of Marrakech.
- 22 " " — A swarm covering 4 x 2 km coming from the S. settled 21 km S.-S.-W. of Demnat.
- 23 " " — Hatchings 19 km E.-S.-E. of Amizmiz.
Hatchings over 2000 ha 32 km S. of Marrakech.
- 25 " " — Hatchings over 500 ha 8 km E., over 400 ha 19 km E.-S.-E. of Ait Ourir.
Hatchings over 300 ha 25 km N.-E. of Amizmiz.
Hatchings over 325 ha 35 km S. of Marrakech.
- 26 " " — Hatchings over 1800 ha 31 km S.-E. of Marrakech.
Migrating hoppers over 500 ha 5 km N.-W. of Sidi Lamine.
- 27 " " — Hatchings over 205 ha 30 km S.-E. of Marrakech.
- 28 " " — Laying over 100 ha 10 km E.-S.-E. of Demnat.
Hatchings in the valley of the Oued N'fis (Goud Atlas).
Hatchings over 1850 ha in the region of Marrakech.

French West Africa: Tropical Migratory Locust (*Locusta migratorioides*) (1).

FRENCH SUDAN.

12 April 1932 — Swarm at Bamako (samples identified).

DAHOMEY.

- 2 March 1932 — Swarm at Bassila (Djougou) flying W.
- 3 " " — Swarm at Djougou flying S.-W.
- 4 " " — Swarm at Savalou flying E.
- 14 " " — Swarm at Natitingou flying N.-W.
- 21 " " — Swarm at Parakou flying E. (Samples identified).

Algeria: Moroccan Locust (*Doclostaurus maroccanus*) (1).

- 1-4 May 1932 — Hatchings at 30 km N. E. of Rocher de Sel (Djelfa).
- 14 " " — Hatchings over 1 are 10 km. S. W. of Charef (Djelfa). A few scattered hoppers have been identified having come from Freneda and Boghari.

Australia: A Disease of Citrus Recorded in New South Wales for the First Time (2).

A disease of citrus with which a species of *Septoria* is constantly associated was recorded in this State for the first time last season. It is at present confined to one small isolated inland citrus area, but appears to be of potential importance.

The disease is known to attack oranges and lemons, both fruit and foliage, but not the twigs; the fruit lesions appearing in winter as the crop is approaching maturity.

There is a probability that the fungus concerned is identical with *Septoria depressa* which McAlpine recorded on oranges and lemons in Victoria in 1899, but nothing is known in reference to the aetiology or control of the disease here.

Eritrea: Locusts (3).

During April and May 1932 no locusts were reported in the Colony.

Poland: Tests of Resistance to Potato Wart Disease (*Synchytrium endobioticum*) (4).

Following on an outbreak of potato wart disease in certain districts of West Poland, trials were conducted on the resistance of potato varieties. The experi-

(1) Communication from the Government General of Algeria (Direction des Services Economiques) to the International Institute of Agriculture.

(2) Communication from the official correspondent of the Institute, Mr. R. J. NOBLE, M. Sc., B. Sc. Agr., Ph. D., Biologist, Department of Agriculture, Sydney, New South Wales.

(3) Communication from the official correspondent of the Institute, Dr. A. DE BENEDICTIS, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

(4) Communication from the official correspondent of the Institute, Dr. L. GARBOWSKI, Chief of the Plant Disease Section, National Agricultural Institute, Bydgoszcz.

ments were undertaken by the Plant Disease Section of the National Agricultural Institute at Bydgoszcz and carried out from 1928 at the Phytopathological Laboratory of the Institute and from 1929 also in an infected field at Rzadkowo in the district of Chodzież, Posenania.

The following are some of the results of general interest. We first succeeded in perfecting the process for infection of sprouting tubers by means of summer sporangia by the method of Miss Glynne of Rothamsted, which made it possible to determine a susceptibility to infection towards the 10th or 14th day. We were then able to verify the resistance of certain potato varieties of German origin ('Arnika', 'Erdgold', 'Favorit', 'Hindenburg', 'Jubel', 'Juli', 'Parnassia', 'Pepo', 'Rosafolia') and to prove the resistance of certain Polish varieties ('Lech', 'Magdalenki', 'Prezydent Narutowicz', 'Wita', 'Włoszanowskie No. 12', 'Włoszanowskie No. 112'). On the other hand certain varieties of German origin, namely: 'Cellini', 'Max Delbrück', 'Sickingen' and 'Roland I', which were supposed to be resistant to wart disease were found susceptible to infection in the laboratory and in the field. The variety 'Kuckuck' became badly infected in the laboratory but was resistant in the field.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Colombia (Republic of). — The *Boletín de Agricultura* (Bogotá, marzo y abril de 1932, año V, núms. 3 y 4, págs. 154 a 174), organ of the 'Ministerio de Industrias', publishes under the title of 'Reglamentación sanitaria vegetal' all the regulations adopted by the Government concerning importation of plants, plant parts and seeds into the Republic and concerning their application by the officials of the Service for Inspection and Phytosanitary Control.

A list is given of the plants and plant parts coming from given countries which may not be directly imported by private persons, with in each case the reason for the restriction.

A register has been instituted at the 'Departamento de Agricultura del Ministerio de Industrias' in which are inscribed, in alphabetical order and with the details considered necessary, the names of the individuals, firms and commercial companies sending to Colombia seed of market and forage plants, palms, trees, climbing and flowering plants, duly certified as healthy by the competent authorities of the country of origin. A list is given of the species belonging to these various classes of plants.

The rules are also given which are to be observed in importing plant material other than seeds, or seeds other than those included in the preceding list, or of seeds coming from firms not entered in the above-named register.

France. — By Decree of 21 May 1932 in modification of article 1 of the Decree of 18 April 1932 [see this *Bulletin*, 1932, No. 5, p. 80] importation into France of living plants, rhizomes, and bulbes of all sorts coming from the Netherlands is allowed. (*Journal Officiel de la République Française*, Paris, 26 mai 1932, LXIV^{ème} année, n° 122, p. 5442).

* * By Decree of 23 May 1932 as from the date fixed by Decree of the Minister of Agriculture, importation and transit of potatoes, tomatoes and aubergines coming from Belgium are forbidden in France.

As an exceptional measure importation of seed potatoes coming from Belgium may be authorised in accordance with conditions fixed by Decree of the Minister of Agriculture. (*Ibid.*, p. 5440).

* * By Ministerial Decree of 23 May 1932 the provisions of the said Decree of 23 May 1932 came into force as from the date of publication of the *Journal Officiel*, viz, 26 May 1932. (*Ibid.*, p. 5440).

* * A further Ministerial Decree of 23 May 1932 authorises the importation of seed potatoes, allowed as an exceptional measure by the Decree of 23 May 1932, in the conditions already fixed for other countries by Ministerial Decree of 18 April 1932 [see this *Bulletin*, 1932, No. 5, p. 80]. (*Ibid.*, p. 5440-5441).

* * By Ministerial Decree of 23 June 1932 the restrictions contained in article 1 of the Decree of 8 March 1932 [see this *Bulletin*, 1932, No. 4, p. 57] concerning measures to prevent introduction of the San Jose scale (*Aspidiotus perniciosus*) into France, are made applicable to consignments coming also from Chile. (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements Agricoles*, Paris, 1^{er} juillet 1932, année 1932, n° 13, p. 292).

Italy. — Ministerial Circulars Nos. 245 of 23 April 1932 and 247 of 28 April 1932 addressed to the Directors of the Royal Phytopathological Observatories, contain respectively the regulations to be observed for exportation of potatoes to Hungary and of raw cherries to Germany and Holland. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 16 maggio 1932, anno IV, n. 10, pp. 1462-1463, 1465-1467).

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INTERNATIONAL BULLETIN

OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

French West Africa: Desert Locusts (*Schistocerca gregaria*) in Mauritania (1).

- 26 June, 1932 — A large swarm of brownish and pink locusts passed, driven by the South wind to Atar, direction S. E. to N. W.
28 " " — A pink swarm passed near Atar, direction S. E.-N. W.

Algeria and Tunisia: Desert Locusts (*Schistocerca gregaria*) (1).

ALGERIA.

- 1st June, 1932 — A swarm settled and laid on 30 ha. at 10 kms. S. E. of Aumale.
A swarm of 2 kms. \times 3 kms. going S. E.-N. E. passed at Messad.
- 2 " " — Small hatchings at 10 kms. S. of Kerrat.
Hatchings near Lafayette (fraction Ouled Faidel).
- 3 " " — A swarm coming from Messad settled at 15 kms. E. of Djelfa and departed towards the E.
- 4 " " — A large swarm, direction N. W.-S. E., passed at Messad.
Hatchings at the douar Taguedide of Aumale.
- 5 " " — A large swarm coming from S. E. settled at 40 kms. N. of Ghardaïa, and left on 6 June going N. W.
A fairly dense swarm passed, direction N. E.-S. W. over El Oued.
A small swarm flew over Mecheria, direction N.-S.
Hatchings at 10 kms. S. of Guardaïa.
- 6 " " — A large swarm flew over Messad, direction W.-E.
A swarm over Berrian, 40 kms. N. of Ghardaïa.
Small hatchings at 7 kms. S. W. of Kerrata.
Layings at 30 kms. N. of Mecheria.
- 7 " " — Some small hatchings on the douars Ouled Khaled and Ouled Slimane of Bou-Saâda.
- 9 " " — A large yellow swarm settled at 25 kms. S. of Sebdou.
A swarm coming from S. settled at 40 kms. E. of Saïda and departed towards N.

* In this, as in the next chapter, the countries are arranged in French alphabetical order.

(1) Communication from the General Government of Algeria, Department of Economic Services, to the International Institute of Agriculture.

- 9 June, 1932 — Two swarms of 2nd generation settled at 30 kms. E. N. E. of Touggourt.
- 10 " " — A swarm settled at 12 kms. S. of Martimprey on 5×3 kms. and departed.
A swarm of 2nd generation settled at Terdjan near Touggourt departed towards Ouargla.
A swarm of 2nd generation coming from the S. settled at El Goléa and departed towards N.
Hoppers migrating at 47 kms. S. W. of Ghardaia.
- 11 " " — A small swarm, direction N. W.—S. E. passed at 15 kms. West of Mecheria.
Small hatchings at Sidi Aïssa from layings made on 7 May.
A large swarm of 2nd generation, S. W.—N. E., passed over Fort Polignac.
A large swarm of 2nd generation settled on In Salah (damage).
- 12 " " — A large swarm coming from the S. settled on the douar Kimmel d'Arris.
A large swarm of 2nd generation coming from W. settled on El Goléa. Departed on 13 June towards the East.
A swarm of 2nd generation coming from W. settled at El Goléa and departed towards E.
- 13 " " — The swarm reported on 9 June at 25 kms. S. of Sebdu after several changes of position has departed towards W. Some hatchings at Aumale.
- 14 " " — A swarm, direction S. N., passes over Fort Flatters.
A yellow swarm coming from the S., settled at 44 kms. N. of Laghouat, departing on 15 June towards E.
A swarm of 2nd generation crossed the gorges of El Kantara going towards the N.
Swarms of 2nd generation driven by the wind from the S. settled on the douars Labio and Ouled Abdi d'Arris.
A swarm of 2nd generation settled 47 kms. S. W. of Ghardaïa.
A swarm of 2nd generation settled at 3 kms. S. of Ghardaïa.
- 15 " " — Two swarms, flying W. E., at 40 kms. S. of Géryville.
A swarm of 2nd generation settled at Ouagla, departing towards S.
- 16 " " — Some hatchings at Sidi-Aïssa.
A swarm of 2nd generation, direction N.—S., over Djanet.
- 17 " " — Hatchings at 2-8 kms. from Ghardaïa.
A swarm of 2nd generation going W.—E. passed at 40 kms. S. of Géryville.
- 18 " " — Small swarms of 2nd generation settled on the douars Oul-lache and Zelatou d'Arris.

- 19 June, 1932 — A swarm of 2nd generation coming from the N. settled at El Goléa and departed towards W.
Swarm of 2nd generation in the S. of Kenchela.
- 20 " " — A small swarm, direction N. S., passed at Kerzar (Beni Abbès).
Hatchings at 17 kms. W. of Tadmit (Djelfa).
Hatchings at 12 kms. N. E. E.—S. E. of Tebessa.
Swarms of 2nd generation driven by the wind flew over towards N. W. Taberga (Khenchela).
A swarm of 2nd generation coming from the S. settled at 9 kms. E of Ghardaïa, departing on 21 June towards N. E.
- 22 " " — Hatchings at the douar Kimmel d'Arris.
- 23 " " — Hatchings at 12-15 kms. N. W. and N. E. of Tebessa.
Hatchings at 40 kms. S. of Djelfa.
Swarms of 2nd generation coming from N. E. at 60 kms. S. W., 70 kms. S. E., 120 kms. S. W. of Timimoun.
Swarms coming from S. S. W. observed at Fort Flatters.
- 24 " " — A large swarm of 2nd generation coming from the E. settled at El Goléa (damage).
A large swarm of 2nd generation settled on 20 June at Ghardaïa departed towards N. E. (damage).
- 25 " " — A swarm of 2nd generation going towards S. passed at 18 kms. N. of Ouargla.
- 26 " " — A large swarm coming from the S. settled at Beni Abbès, leaving on 27 June.
Hatchings at 15 kms. N. E. of Tebessa.
A swarm of 2nd generation coming from the S. settled at the douar Limmel d'Arris, leaving on 27 June.
A swarm of 2nd generation coming from S. W. settled at Adrar and departed towards N.
- 27 " " — A large swarm passed over Messad, direction S. W.—N. E.
A large swarm coming from the S. settled at the douar Bitam de Barika.
A swarm of 2nd generation settled at Chetma near Biskra (damage).
A swarm of 2nd generation settled near Beni Abbès.
A swarm of 2nd generation coming from the S. settled at Timi near Adrar.
- 28 " " — A large swarm crossed douar Bitam de Barika towards N.
A swarm of 2nd generation at the douar Tanza de Khenchela.
A swarm of 2nd generation coming from S. W. settled at 5 kms. S. E. of Géryville.
A swarm of 2nd generation coming from the S. W. settled at Fort Flatters (damage).
A swarm of 2nd generation settled on In Salah (damage).
- 29 " " — A swarm going N. passed over Arris.
Various swarms going towards N. E. or W. coming from the S. have been reported in the commune of Arris.

TUNISIA.

- 16 June, 1932 — A swarm of 2nd generation passed, direction S. N., at 95 kms. S. of Thala.
- 20 " " — A swarm of 2nd generation coming from the S. W. settled at 40 to 45 kms. S. E. of Thala and departed towards N. W.
A swarm of 2nd generation passed, direction W. E., at 80 kms. S. E. of Thala.
- 27 " " — A large swarm of 2nd generation coming from the S. settled in part at 75 kms. S. of Thala and departed towards the W.
A swarm of 2nd generation passed, direction S. E.-N. W., at 35 kms. S. E. of Thala.
- 29 " " — A swarm of 2nd generation passed, direction S.-N., at 3 kms. S.-E. of Thala.
A swarm of 2nd generation passed towards the S. at 40-50 kms. E. of Thala.
A swarm of 2nd generation coming from the S. settled at 75 kms. S. E. of Thala. Departed on 30 June towards the W.

Eritrea: Tropical Migratory Locusts (*Locusta migratorioides*) (1).

Towards the middle of June dense swarms of *Locusta migratorioides*, coming from the other side of the Abyssinian frontier, invaded the Colony which up to that time had been immune from the pest.

On 14 June, numerous locusts, sexually mature, coming from Bircutan, Tigrai, settled on the region of the Cunama and after having laid in the zone between the Sittona and Giarabà, resumed flight in the direction of the high tableland.

On 19 and 20 June, locusts of a reddish colour, coming from the other side of the frontier, arrived at Tzellimà, after having flown over the Zaid Accolom and the Medri Uod Seberà, and laid there.

From 20 June to the end of the month, other swarms coming from the Maragus, the Cohain and Tzellimà, all took flight towards the plain of Hazamò. In that locality also laying took place.

Towards the end of the month in the territory of the Residency of Barentù, between Sittona and Biaghela, the presence of small breeding grounds of hoppers was reported. These were destroyed by the technical staff and by the natives of the locality.

Measures were at once taken for establishing a service for prompt and accurate notification in order to mark down the localities where eggs have been deposited, to effect the destruction or the collection of the eggs and to carry out a rapid campaign against the hoppers.

(1) Communication from the official correspondent of the Institute, Dr. A. DE BENEDICTIS, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

India: *Leucoptera sphenograpt* in the Punjab (1).

During summer 1931, this leaf-miner of *Dalbergia sissoo* appeared as a serious pest in most parts of the Punjab. During November 1931 to January 1932, the moths of *L. sphenograpt*, Meyr. were emerging in large numbers and were seen flying about in myriads. Clouds of them appeared in fields and were seen on the roads and even in houses. All through the winter 1931-32 they were found in hedges, among bushes, under barks of trees, in cracks in the soils, in holes in the walls, in fact in all sorts of positions where they could find shelter. They became active early in March, when *D. sissoo* produced freshleaves. Eggs were laid and caterpillars made blotches. There was considerable defoliation. The enormous increase in the number of these moths may be attributed to a rather mild winter.

Tripolitania: Control of Desert Locusts (*Schistocerca gregaria*) (2).

In connection with the serious plague of locusts which occurred in 1932 [see this *Bulletin* 1932, No. 6, p. 96], control work was speedily organised and adults and eggs were collected in large quantities. In addition ploughing was started on non-irrigated lands with the object of destroying the eggs, a policy which has given excellent results.

On 22 April a start was made with hopper control in the south-western zone and afterwards in all other districts as soon as hatching took place. In the first instance use was made of sodium arsenite but, when the invasion began to assume alarming proportions, poisoned bran was employed with great success.

On irrigated lands where it was necessary to avoid poisoning the crops, control was carried out with the aid of naphtha or petrol sprays which killed the hoppers immediately.

The use of trenches also proved very serviceable for the control of locusts which have reached the neighbourhood of the concessions or have obtained a footing in the crops.

At a later stage two batteries, each consisting of ten flame guns sent expressly by the War Ministry, were brought into action.

These were used in the area between Castel Benito and Azizia on land which was particularly suitable for the purpose as it has a heavy growth of inflammable bush (*Paliurus*). The batteries were used 1500 times to destroy the locusts which were thickly distributed over the abundant scrub. The action of the flame guns proved highly effective and at same time inexpensive. This is contrary to experience obtained elsewhere but is to be explained by the presence of scrub in which the locusts stayed in large numbers from the evening till the morning hours.

The whole campaign was brought to a conclusion by 20 June.

(1) Communication from the official correspondent of the Institute, Mr. M. Afzal HUSAIN, Locust Research Entomologist, Punjab Agricultural College, Lyallpur, India.

(2) Communication from the Government of Tripolitania, forwarded to the International Institute of Agriculture by the Italian Ministry for the Colonies.

In the meantime the hoppers that had escaped destruction reached the adult stage and after a halt of some days in different localities took flight towards the South-West. The passage of the swarms was observed at Nalut, Gadames, Garian, Mizda, etc.

The campaign was directed by the Plant Protection Section of the Agricultural Bureau.

The Commandant of the troops gave assistance by placing at the disposal of the Agricultural Bureau the parties of soldiers required. The work of one hundred native prisoners was also utilised.

In the different concessions the concessionaries collaborated effectively with the Bureau which in return gave assistance and provided all necessary material.

During the campaign about 10.000 quintals of bran, 450 quintals of sodium arsenite, 400 quintals of naphtha and petrol, and 18 quintals of benzine were utilised.

The adult locusts which entered Tripolitania caused damage to several vineyards.

Hoppers and nymphs damaged some plantations at Azizia.

More serious damage was done in the concessions of Castel Benito.

Preparations are already being made for the organisation of the control on a wider scale, with a view to protection against any future invasion.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany (1). — By Police Order of 6 June 1932 it is forbidden in the administrative area of Jork to use sprays of lead arsenate in mixed orchards after 12 June 1932 and in any orchard after 20 June. Containers in which arsenical compounds have been kept must be disposed of in such a way as to exclude all possibility of contact with man or beast.

Germany (Bavaria) (1). — The elm disease having been reported in Bavaria, the Ministry of the Interior by Ordinance of 21 April 1932 has decreed measures similar to those adopted by the Free State of Bremen and by Oldenburg [see this *Bulletin*, 1931, No. 6, p. 97, and 1932, No. 2, p. 25].

In a circular, also dated 21 April 1932, addressed to the authorities attached to this Ministry, the police is obliged to keep elm trees under supervision from this point of view and to adopt suitable means of control.

Germany (Mecklenburg-Schwerin) (1). — By Notification of 3 April 1932 the prescriptions have been confirmed which reserve the sale of poisons used for plant protection to pharmacists, to dealers in poisons, to the official dispensaries of the Plant Protection Service and to agricultural co-operative societies holding a special permit granted by the Central Sanitary Service. These pre-

(1) Communication from the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, official correspondent of the Institute.

scriptions relate also to toxic products used for the disinfection of seeds. The above Notification at the same time calls the attention of the police authorities to the illegal trade in these products.

Germany (Saxony) (1). — By Ordinance of 9 May 1932 and with a view to preventing the spread of the cherry fruit fly (*Rhagoletis cerasi*), introduced from abroad and reported several times in Saxony, the Ministry of National Economy has authorised the Communes to enact, if necessary, by police ordinance, measures of control of this parasite. The communes are recommended to use as a basis for such measures Leaflet No 83 published in February 1932 by the Biologische Reichsanstalt für Land- und Forstwirtschaft of Berlin-Dahlem.

In addition orders may be given for gathering the cherries as soon as they are known to be infested by the fly and for preventing the placing of these fruits on the market.

As a check on the execution of orders given, the communes are recommended to require the collaboration of all officials engaged in work in connection with fruit growing and of the specialists attached to the agricultural schools.

Germany (Stade) (1). — By Police Order No. 158, dated 16 April 1932, the Landrat of Jork announces that in view of the protection of bees, it is prohibited:—

(1) to spray the flowers of fruit trees with arsenical compounds;

(2) to carry out such spraying on trees in the neighbourhood of hives before the evening, when the bees have returned from their flights, and without having secured the consent of the owners of the bees.

Argentina. — By Presidential Decree No. 02613-284, of 26 April 1932, the Citrus Red Scale ('cochinilla roya australiana', *Chrysomphalus aurantii*) has been declared to be a plague for agriculture, in accordance with the Law No. 4863.

The Department of Agriculture, in agreement with the provisions of the Law, will adopt all means considered advisable for the destruction of this pest. (*Boletín Oficial de la República Argentina*, Buenos Aires, 9 de mayo 1932, año IX, núm. 11.385, pág. 214).

Belgium. — By Law of 7 August 1931 the International Convention for Plant Protection, signed at Rome on 16 April 1929 [see this *Bulletin*, 1929, No 4, pp. 50-55], will take full effect. (*Moniteur Belge*, Bruxelles, 11-12 juillet 1932, 102^e année, n^{os} 193-194, p. 3777-3783).

* * * The Circular of the Ministry of Finance No. D-604 of 27 January 1932 announces that the headquarters of the Belgian Plant Protection Service has been transferred to Ghent. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1019).

(1) Communication from the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, official correspondent of the Institute.

* * By Circular No. D-6660 of 26 April 1932 the Minister of Finance gives instructions to the Customs Offices in regard to the Ministerial Decree of 18 April 1932 [see this *Bulletin*, 1932, No. 7, p. 110] in reference to the importation of potatoes and of plants and fruits of tomatoes and egg-plants.

The importation of these products coming from any country other than France is subject to the presentation of a certificate released by the official Plant Protection Service of the country of origin certifying that the products have been gathered and despatched at points distant at least 20 km. from any crop attacked by the Colorado beetle (*Leptinotarsa decemlineata*) and potato wart disease (*Synchytrium endobioticum*). The limit of 20 km. may in the case of wart disease be reduced to 500 m. if the Plant Protection Service gives a satisfactory explanation and in addition guarantees that the consignments in question are exempt from wart disease.

The consignments not accompanied by certificates in conformity with these instructions will be turned back unless absence of the Colorado beetle is proved by an inspection, carried out at the expense of the importers by the Belgian Plant Protection Service.

These provisions apply equally to consignments in transit except in the case of a direct transit under supervision of the Customs Office. For transit to the Grand Duchy of Luxemburg, special provisions are in force. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 1. Juliheft, S. 1374-1375).

Canada (1). — By Order in Council P. C. 643 of March 29, 1932, Regulation No. 18 (Foreign) has been rescinded, and the following substituted therefore:—

Regulation No. 18 (Foreign), 1st Revision, prohibiting the importation into the Dominion of Canada of all species and varieties of wheat, etc., from Australia and Asia unless accompanied by a certificate, on account of flag smut.

The importation into the Dominion of Canada of all species and varieties of wheat, including straw, bran and chaff, from Australia and Asia, is prohibited, unless a permit for each importation has been procured by the importer from the Secretary, Destructive Insect and Pest Act Advisory Board, Ottawa, and each shipment is accompanied by a certificate, issued and signed by an authorized official of the country in which the said importation originated, to the effect that the material covered by the certificate was harvested in a locality where the disease flag smut (*Urocystis tritici* Koernicke) is not known to exist.

The requested permit and certificate must be presented with the other entry papers to the Collector of Customs before the shipment can be cleared.

By the same Order in Council the following new Regulations No. 19 (Foreign) and No. 10 (Domestic) have been made and established:—

Regulation No. 19 (Foreign), prohibiting the importation into the Province of British Columbia of gladiolus from the United States of America.

(1) Communication from the official correspondent of the Institute, Mr. ARTHUR GIBSON, Dominion, Entomologist, Entomological Branch, Department of Agriculture, Ottawa, Canada.

The importation into the Province of British Columbia of gladiolus, including cormels, corms, stalks, leaves and bloom, is prohibited from the United States of America, on account of the gladiolus thrips (*Taeniothrips gladioli* M. and S.).

Regulation No. 10 (Domestic), prohibiting the importation into the Province of British Columbia of gladiolus from the other provinces of Canada.

The importation into the Province of British Columbia of gladiolus, including cormels, corms, stalks, leaves and bloom, is prohibited from the other provinces of Canada, on account of the gladiolus thrips (*Taeniothrips gladioli* M. and S.).

Spain. — By 'Orden' of 20 April 1932 the Ministry of Agriculture, Industry and Commerce has transmitted to the Ministry of Foreign Affairs the following list of insects, fungi and bacteria whose presence in consignments of plant products for importation into Spain or whose occurrence in their country of origin will prohibit importation of the plants, their fruits, seeds or parts infected, also of any materials capable of carrying infection with the species named :—

Insects. — *Aonidiella pernicioso* ('cochinilla de San José') on fresh fruits of any kind; *Laspeyresia molesta* ('polilla oriental') in fresh fruits; *Lepidotarsa decemlineata* ('escarabajo de la patata', 'escarabajo del Colorado') on tubers, peelings and leaves of potato or other Solanaceous plant; *Epithrix cucumeris* ('coleóptero norteamericano de la patata'); *Aleyrodes citri* and other species of the same genus; *Sesamia calamistis* in stalks and cobs of maize; *Icerya purchasi* ('cochinilla australiana' or 'acanalada'); *Sasakiaspis* (*Diaspis*) *pentagona* ('cochinilla de la morera') on plants of mulberry, peach, cherry-laurel, locust tree, willow, white-beam, japanese sophora, spindle tree, Canadian poplar, apricot, apple, pear, cherry, grape vine and jessamine, also on cacao pods; *Coccus viridis* ('cochinilla del cafeto') on coffee fruits and citrus plants; *Popillia japonica* ('escarabajo del Japón'); *Anthonomus grandis* ('picudo del algodónero'); *Pectinophora gossypiella* ('gusano rosado del algodónero').

Fungi and bacteria. — *Guignardia Bidwellii* ('podredumbre negra de la uva') on unrooted and rooted cuttings of European and American grape vines; *Endothia parasitica* ('chancro americano del castaño') on plants, bark, branches, fruits or seed of chestnut; *Diaporthe pernicioso* on fruit trees; *Synchytrium endobioticum* ('sarna verrugosa' or 'sarna negra de la patata') in potato tubers, fruits and green parts of all species of Solanaceae (tomato, eggplant, pepper); *Thielaviopsis paradoxa* and *Fusarium cubense* on plants and fruits of banana and on plants and fruits of pineapple; *Ascochyta chlorospora* on unshelled almonds; *Graphium Ulmi* ('enfermedad holandesa del olmo') in branches, cuttings or plants of elm; *Corticium salmonicolor* and *C. Koleroga* on plants of orange and other citrus species, their parts, fruits and fruit rind; *Pseudomonas* (*Bacterium*) *Citri* ('chancro de los citrus') on plants and fruits of citrus species; *Bacillus amylovorus* on plants and fruits of pear, apple, quince and other cultivated or wild Pomaceae; *Phyllosticta solitaria* on plants and fruits of apple and

other species of the genus *Malus*; *Necofabraea malicorticis* (' antracnosis americana del manzano ') on plants and fruits of apple, pear and quince; *Gymnosporangium Juniperi-virginianae* (' roya americana del manzano ') on plants and fruits of apple, and *Juniperus virginiana*.

Certificates issued by the official Phytopathological Services of the different countries sending to Spain plant products or living plants must declare that the respective countries are free from the diseases and pests mentioned in the present list. (*Gaceta de Madrid*, Madrid, 24 abril 1932, año CCLXXI, tomo II, núm. 115, págs. 628 y 629).

** By ' Orden ' of 13 May 1932 the Regulations have been approved for the National Committee for Medicinal Plants of Spain and the Spanish Colonies and Protectorates, which was established by ' Real orden ' of 7 May 1928 under the ' Ministerio de la Gobernación ' and later incorporated by Royal Decree of 7 November 1930 in the ' Dirección General de Agricultura '.

To ensure effective work the Committee will be divided into six Sections. The Section concerned with plant pathology, commerce and control will be responsible *inter alia* for the study and control of diseases attacking medicinal plants. (*Gaceta de Madrid*, Madrid, 15 mayo 1932, año CCLXXI, tomo II, núm. 136, págs. 1217 a 1220).

Iraq. — By Ordinance No. 10 of 25 February 1932 the importation into Iraq of fresh fruits and of slips of citrus trees, as well as of grapes, leaves and slips of vines is prohibited unless accompanied by a certificate of the competent Plant Protection Service attesting the absence of any disease. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1031).

Italy. — The Royal Decree-Law No. 816 of 19 March 1932 gives full and complete execution to the Italian-Hungarian Agreement on Exportation, signed at Rome on 23 February 1932.

According to the article 4 of this Agreement, which came into force on 21 July 1932, it is understood that the limitations on transit, of a sanitary kind, which will be assumed by the sanitary regulations referred to in art. 5, can only be established in the cases contemplated by the Convention of Rome of 29 March 1923 for the regulation of transit and communications over the lines of the Danube-Save-Adriatic Railway Company, formerly the Southern Railways Company.

It is understood in addition, that as regards the transit of animals and of products of an animal or vegetable origin, the provisions of the special Agreement in force between the High Contracting Parties will continue to be applicable.

According to art. 5 in the reciprocal traffic of the railways contemplated by the present Agreement, sanitary regulations, as far as possible uniform, will be applied to the disinfection of transports and of means of transport. The same will hold in respect of the other preventive measures against infectious diseases of men, animals, and plants. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 19 luglio 1932, anno 73º, n. 165, pp. 3410-3412, 3423).

* * By Law No. 878 of 8 June 1932, the Royal Decree-Law No. 242 of 19 March 1932 [see this *Bulletin*, 1932, No. 5, pp. 80-81] giving effect to the commercial 'Modus vivendi' between Italy and France signed at Rome on 4 March 1932, has been made Law. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 4 agosto 1932, anno 73^o, n. 179, p. 3610).

* * By Ministerial Decree of 15 July 1932 living plants, *inter alia*, are added to the commodities shown on Table A ('Commodities the importation of which is prohibited'), appended to the Royal Decree-Law No. 1923 of 14 November 1926, transformed into Law No. 1495 of 7 July 1927. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 19 luglio 1932, anno 73^o, n. 165, p. 3421).

* * By Ministerial Decree of 15 July 1932 sanitary regulations have been made for the importation from abroad of varieties of potatoes for use exclusively as seed for the season 1932-1933. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 21 luglio 1932, anno 73^o, n. 167, pp. 3442-3444).

Latvia. — The Ordinance No. 44 of 1st March 1932 of the Minister of Finance gives a new list of products for the control of plant diseases and pests, which are admitted duty free. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1052-1053).

Morocco (French Zone). — In view of the fact that the date palms of the palm groves of Morocco are attacked by a disease known under the name of 'bayoud' the cause of which has not yet been determined, there has been instituted, by Residential Decree of 28 May 1932, a Commission for the study of the control of 'bayoud'. Its function is to draw up programmes of enquiries and trials, to carry out technical observations in the palm groves infected by the disease and to examine all the control measures that have hitherto been tried.

The Commission meets officially once a year, at Morocco. In addition, it may be summoned whenever required, by the action of the General Director of Agriculture, Trade and Colonisation. (*Empire Chérifien. Protectorat de la République Française au Maroc. Bulletin Officiel*, Rabat, 10 juin 1932, XX^{ème} année, n^o 1024, p. 654).

* * A Decree of the Director of Waters and Forests of Morocco dated 20 May 1932, authorises, up to 3 September 1932, the day before the opening of the 1932 shooting season, the owners or holders of lands included in certain zones of the annex of Tedders, district of Temmour, to destroy on the fields by every means other than fire, rabbits causing damage to their crops. The rabbits killed may not be transported, hawked for sale or placed on the market, in any place whatsoever. (*Ibid.*, p. 656).

Netherlands (The). — In conformity with the Royal Decree of 24 March 1932 the object of which is to prevent the introduction of the Colorado beetle [*Leptinotarsa decemlineata*] the Minister of the Interior and of Agriculture by

Decree of the same date has prohibited the importation or transit of potatoes coming from France. The importation and transit of fresh vegetables coming from France are also prohibited during the period from 15 March to 14 October, unless the consignments are accompanied by an official certificate issued by the Phytopathological Service of the importing country declaring that the merchandise is free from the beetle and comes from localities where the beetle is not found either in the place itself or within a radius of 200 kilometres. Consignments not exceeding 50 kilogrammes are however admitted at the Customs Office of Roosendaal only, on condition that they show no signs of infestation. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1093-1094).

Portugal. — By Decree No. 21174 of 27 April 1932, importation of potatoes has been brought under new plant sanitation measures.

The importer must notify potato consignments to the Plant Protection Service at least six days before their arrival. An Inspector of the Service must be present at the place of entrance of the tubers. He will then examine the certificates of origin and of health. After having verified the seals attached by the Plant Protection Service of the country of origin, he will make the check by opening at least five per cent. of the bags and emptying at least one per cent. If any trace of the presence of potato wart disease [*Synchytrium endobioticum*] or of the Colorado beetle [*Leptinotarsa decemlineata*] is observed, the entire consignment must be destroyed or returned to the country of origin.

Potatoes which have not more than 5 per cent. of damaged tubers are considered as healthy, the scars produced by the common scab (*Actinomyces Scabies*) being taken into consideration only if they cover more than one tenth of the tuber. A sanitary certificate will be granted at once under which such potatoes may be delivered to the consignees.

Parts of the potatoes containing more than five per cent. and less than 25 per cent. of damaged tubers may, after strict selection, be granted a sanitary certificate. Affected potatoes must be destroyed under the supervision of the Customs Office. A full report must be made.

Parts of potatoes containing more the 25 per cent. of damaged tubers will be treated as those attacked by wart disease or Colorado beetle.

The inspection fees collected by the Customs Office remain as before [see this *Bulletin*, 1932, No. 5, p. 81].

Appeal against the decision of the Inspector of the Plant Protection Service may be made by the importer to the superior authority which will proceed to a fresh inspection. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 1. Juliheft, S. 1449).

Sweden. — By Notification of the medical authority dated 8 March 1932, there are indicated the products with nicotine, arsenical and mercury bases used for plant protection, which are regarded as poisons of the second class. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1107-1108).

Czechoslovakia. — By Ministerial Ordinance of 1st February 1932 and with the object of checking the introduction of the San José Scale (*Aspidiotus*

perniciosus), the prohibition of importing living plants, slips, suckers, etc., as well as material that has been used for their packing and transport, has been extended to consignments coming from Africa, Austria and Hungary, where the presence of the insect has been reported. (*Deutsches Handels-Archiv*, Berlin 1932. 86. Jahrg., 2. Juniheft, S. 1293).

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[To judge from the three volumes which have so far appeared and which form together tome I of this treatise, the work under review is without precedent in France. If continued on the same plan, the remarkably full treatment of the separate subjects, the wealth of illustration, the abundance of bibliographies (one at the end of each section of the work) will render this treatise when it finally issues from the press the most complete and most modern ever produced in the French language.

The first volume opens with an Introduction (pp. 7-106) sub-divided under heads as follows :—

I. Considérations générales. — II. Historique de la Pathologie végétale. — III. Classification des maladies. — IV. Méthodes générales de préservation et de lutte contre les maladies des végétaux. — V. Produits anticryptogamiques et appareils de traitement. — VI. Climatologie. — Bibliographie générale.

The remainder of the volume deals with the diseases of the vine (pp. 107-649), general information on the diseases of fruit trees (pp. 651-658), and diseases of the apple (pp. 659-993).

The discussion of vine diseases is prefaced by an historical account of vine cultivation in Europe and North America as well as by a classification of the cultivated vines and some genetic considerations.

Volume 2 deals successively with diseases of the pear tree (pp. 995-1145), of the quince (pp. 1146-1162), the medlar (pp. 1163-1165), service trees (pp. 1166-1168), hawthorns (pp. 1169-1171), the peach and the almond (pp. 1172-1268), the

apricot (pp. 1269-1300), plum (pp. 1301-1386), and cherry (pp. 1387-1420). Subsequently the discussion is pursued in reference to the diseases of the bush fruits: *Ribes* (pp. 1424-1482), *Rubus* (pp. 1483-1533), *Vaccinium* (pp. 1534-1541). The strawberry is also dealt with under this head (pp. 1542-1547).

The last part of volume 2 is devoted to diseases of the Mediterranean crops: olive tree (pp. 1570-1613), citrus (pp. 1614-1671), fig (pp. 1672-1684), mulberry (pp. 1685-1738), pomegranate (pp. 1739-1740), loquat (pp. 1741-1742), Japanese persimmon (pp. 1743-1744), carob (pp. 1745-1746), pistachio (pp. 1747-1748), jujube tree (p. 1749), and date palm (pp. 1750-1763).

It should be mentioned that both for the vine and for the more important among the other plants enumerated above, in addition to the account of the cryptogamic, physiological and non-parasitic diseases or those due to undetermined cause, some brief notes are supplied in regard to the principal animal parasites on the same plants.

Volume 3 consists, as stated, of an Atlas of admirably reproduced coloured plates representing the external features of the plant diseases reviewed].

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[With title and summary also in Flemish. The writers summarise in the following way the results of their experimental researches :— 1^o que plusieurs bactéries, décrites dès le début de la bactériologie, figurant déjà dans le « Bakteriologische Diagnostik » d'Eisenberg (1891) et généralement considérées comme saprophytes, ont été trouvées parasitant les tubercules de pommes de terre, au champ même ou dans les locaux de garde, et que les plantes issues des tubercules où le chauffage détecteur de Biourge a révélé leur présence, montrent pendant leur végétation, tous ou presque tous les phénomènes que la Phytopathologie a attribués jusqu'ici à des virus filtrants, non visibles au microscope ou, du moins, non cultivables au laboratoire; 2^o que ce sont des bactéries sporogènes en général, plusieurs à spores très résistantes à l'ébullition; 3^o que l'injection aseptique de cultures vivantes de ces microbes à des plantes en bonne santé y détermine, après une courte incubation, les phénomènes attribués aux virus filtrants; 4^o qu'il est impossible, à peu près, d'obtenir des plantes saines, en partant de tubercules où le chauffage à 42°C. a fait reconnaître l'existence de ces bactéries; 5^o qu'il est possible d'isoler de tout sujet manifestant une virose, l'un ou l'autre de ces microbes, soit, de préfé-

rence, par prélèvement aseptique irréprochable, soit, si des spores se sont déjà formées, par chauffage suffisant des jus bruts portés ensuite, en milieux nutritifs, aux températures favorables de 33 à 44° C., et même au delà: 45°, 46° 5 et 66° C.].

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CLEMENTS, FREDERIC E., and SHEAR, CORNELIUS L. The genera of fungi. Illustrated by Edith S. Clements. New York, The H. W. Wilson Company, 1931, pp. VIII + 496, 58 pls.

[In the first edition of this valuable work of reference which appeared in 1909, there were included 2909 names of genera of fungi; the present volume contains more than 5000 names, including those registered after 1920. The text is accompanied by nearly 1800 drawings, mostly original, of the type or of other species representative of about 700 genera. In contradistinction to the first edition, this new edition does not include *Myxomycetes*, *Bacteria* and *Myxobacteria*. The bibliography is added of the most important literature on systematic mycology (pp. 414-432) and the glossary of Latin and English terms has been increased and improved (pp. 433-462).

The work is divided into the following parts:—

Introduction. — System of classification. — List of key initials. — General key to families. — Key to the genera. — List of types and synonyms. — Bibliography. — Glossary. — Index. — List of plates].

COLIZZA, CORRADO. La grillotalpa. Sue abitudini e metodi per combatterla. *Bollettino del Laboratorio di Zoologia Agraria e Bachicoltura del R. Istituto Superiore Agrario di Milano*, Milano, 1932, vol. III, fasc. 1^o, anno 1930-31-X, pp. 150-155.

CUNNINGHAM, G. H. The rust fungi of New Zealand together with the biology, cytology and therapeutics of the Uredinales. Dunedin, N. Z., John McIndoe, 1931, pp. XX + 261, 178 figs.

[In the preface the author states:— 'This volume is the outcome of many years' continuous study of the Rust Fungi. The first part comprises a condensed survey of present day knowledge concerning the biology of the rusts; the second covers the taxonomy of all species known to occur in New Zealand'.

This statement is fully confirmed by the contents of the book, and its usefulness can be judged merely from the enumeration of the headings of the single chapters:—

Part I. — Structure, biology, cytology and therapeutics.

Introduction.

Chapter I Morphology and cytology of spore forms. — Chapter II. Germination, viability and factors affecting viability of the spores. — Chapter III. Entry and penetration of the host; host factors affecting penetration. — Chapter IV. Dissemination and perpetuation of the rusts. — Chapter V. Parasitism — Autoecism and heteroecism: host factors affecting parasitism. — Chapter VI. Biologic and physiologic specialization. — Chapter VII. Therapeutics. — Chapter VIII. Evolution of families and genera. — Chapter IX. Technique. — Chapter X. Classification of the Uredinales.

Part II. — Systematics of the New Zealand Uredinales.

I. Arrangement of New Zealand genera and families. — II. Distribution of the New Zealand Uredinales. — III. Description of the New Zealand species. — IV. Fungi parasitic upon the Uredinales. — V. Bibliography. — VI. Index].

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[*Cercodeuterospora trichophila* n. gen. et n. sp. on living leaves of *Cajanus indicus*, *Cercospora italica* n. sp. on living leaves of *Ceiba pentandra*, *C. somalensis* n. sp. on living leaves of *Cassia Fistula*, *C. Sesami* var. *somalensis* n. var. on living leaves of *Sesamum indicum*, *C. ricinella* on leaves of *Ricinus communis*, *C. Nicotianae* on living and dried leaves of *Nicotiana Tabacum*, in Italian Somaliland. Latin diagnosis of the new genus, of the new species and of the new variety are appended].

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[*Thrips* sp.].

DRAGO, A. Lutte obligatoire contre la cochenille des hespéridées (*Chrysomphalus dictyospermi*). XV^e Congrès International d'Agriculture, Praha, 5-8 Juin 1931. Actes, Prague, 1931, III^e vol., p. 600-606.

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[*Schistocerca gregaria*, *Locusta migratorioides*, *Nomadacris septemfasciata*].

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[Much has been written and much will probably still be written on the subject of this disease of potatoes. The author has done well in condensing all that is at present known on this important subject into the present admirably arranged monograph.

The work is divided into the following chapters:—

I. Einleitung (Geschichtliches, geographische Verbreitung, wirtschaftliche Bedeutung). — II. Krankheitsbild und-verlauf. — III. Histologisches. — IV. Physiologie. — V. Übertragung. — VI. Einfluss äusserer Faktoren auf die Krankheit. — VII. Innere Krankheitsfaktoren. — VIII. Ätiologie der Krankheit. — IX. Bekämpfung.

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[Revision and re-arrangement of all the parasites, predaceous insects and hyperparasites of *P. nubilalis* reported up to 1931 in the world. A biological and morphological study of those that are found in Emilia and in Lower Venetia. Illustrations are given of 116 forms belonging to the orders of the Hemiptera, Neuroptera, Coleoptera, Hymenoptera and Diptera. The description of the larval and adult stages of various species is added].

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INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Austria: The San José Scale (1).

During the autumn of 1931 the news spread of the introduction of the San José scale (*Aspidiotus perniciosus*) into Europe. In Austria it was particularly gardens in Vienna which were found to be infected, where in recent years fruit trees introduced from Hungary had been planted. A few other small centres of infection were found in nursery gardens and at some tree sellers' establishments. All the infected areas were however restricted to places where trees had been brought from abroad. In Austria these centres of infection were not extensive. Also the climate of Central Europe would not seem favourable to a serious spread of the pest.

The discovery of the invasion not, however, having been a pleasant surprise it has necessitated active measures of protection. Thus in Austria there has been no hesitation in completely destroying all the fruit trees known to be infected with the San José scale. They have been burnt on the spot by means of petrol.

As an experiment in a special case the trees were disinfected in a suitable chamber by means of hydrocyanic acid, which proved perfectly effective.

In order to prevent any further introduction of the pest it was of the highest importance for the Austrian Phytopathological Service to find the source of the infection from abroad. A few weeks of investigation sufficed to prove that the source of infection in Austria came from Hungary where considerable infection has been reported in the nursery gardens of Ujszeged and as early as Christmas 1928 in the region of Szombathely.

As it may reasonably be supposed that the San José scale has already invaded other European States from Hungary and elsewhere without having been reported, the Austrian Government has considered it necessary to take preventive measures not only against countries recognised to be infested but also to extend the measures so that they form a protection against any State in which the San José scale may exist without having been recognised. The Austrian Government has thus prescribed that all deciduous trees and shrubs being capable of carrying the scale must be inspected on importation into Austria by the Phyto-

* In this, as in the next chapter, the countries are arranged in French alphabetical order.

(1) Communication from the official correspondent of the Institute, Dr. Bruno WAHL, Director of the Federal Station for Plant Protection, Vienna.

pathological Service of the exporting country and must also be accompanied by a certificate issued by the Service stating that the plants have been submitted to a compulsory and effective disinfection by means of hydrocyanic acid.

Importation of such trees and shrubs may be allowed only by railway, ship or post. A special permit is also required. Finally, any consignment of living plants, including apples and pears, must be accompanied by a certificate issued by the Phytopathological Service of the exporting country.

Doubtless in the course of the next few years careful observation will reveal the presence of the San José scale in various European States. Very severe measures will be required to stamp out the pest completely. Austria has set the example.

The introduction of the San José scale constitutes a danger to Central Europe comparable with that of the spread of potato wart disease and the Colorado beetle. It may be calculated that in our regions the San José scale would have three generations a year, which in view of the prolific fecundity of the insect is a considerable rate of multiplication.

On the other hand the scale has only restricted means of spreading rapidly, as is proved by the example of Austria, where the centres of infection have remained very small. In exceptional cases only has the infection from imported trees spread in their vicinity. As a precautionary measure, moreover, the vicinity of infected plants has been repeatedly disinfected with carbolineum or a lime sulphur spray in winter and with nicotine extract in summer. Free commerce in the infested regions has also been restricted and other measures of this nature have been taken.

Seeing that in Austria only the beginning of an invasion has been concerned it has been relatively simple to adopt the necessary measures to lead to the complete extermination of the pest.

Hungary: Introduction and Spread of the San José Scale and the Control Measures Adopted (1).

The presence of the San José scale (*Aspidiotus perniciosus* Comst.) in Hungary was recorded for the first time at the end of December 1928. It was on apples which had been sent from the commune of Kámon (Comitat of Vas) that the writer first observed the attack of the insect.

Systematic investigations were immediately undertaken in the affected region. Then, on the suggestion of the Hungarian Entomological Station all the region recognised to be infected, that is to say the whole district of Szombathely in the Comitat of Vas, plus a zone of protection, were put into quarantine by the Ministry of Agriculture, so that it was forbidden to export living plants or parts of living plants from the area in quarantine to any other part of the

(1) Communication from the official correspondent of the Institute, Mr. G. BAKÓ, Director of the Royal Hungarian Entomological Station, Budapest.

country. Within this area the transport of such products from one place to another was allowed only if inspection had shown them to be free from the San José scale.

Further investigations have revealed that there exists in Hungary in addition to the centre of infection mentioned another which is situated in the region of Szeged (Comitat of Csongrád). Control measures were immediately undertaken there also, consisting in careful inspection and treatment with carbolineum and lime sulphur in winter and nicotine in summer, and in the case of nursery garden products fumigation with hydrocyanic acid. In spite of these precautions a consignment of 5000 fruit trees for foreign export which contained some infected trees escaped detection. It is not certain however whether the insects were alive or whether they had been killed by treatment with hydrocyanic acid.

In consequence of this happening and others which occurred later the matter of the control of the San José scale was regulated anew for the whole country by Ministerial Decree No. 48 000/1932 of February 1932.

The main points of this Decree were the following:—

(1) In view of the international danger represented by the San José scale the control of the insect is made obligatory in the nursery gardens, fruit orchards, etc., throughout the whole country. The control must be carried out in accordance with the instructions of the Hungarian Entomological Station.

(2) The nursery gardens, horticultural establishments, fruit orchards, etc., will be inspected each year by experts of the said Station in collaboration with the local Commissions which must be organised in every commune. The commissions shall then effect any measures necessary and inform the Station of any observations made.

(3) The inspectors shall decide on the occasion of their annual visit whether or not each establishment is infected. Establishments certified absolutely free from the San José scale may freely consign their products to any place whatever by using a special certificate. Establishments found to be infected will be placed in quarantine, which entails that they may not send goods to establishments certified free from infection. Their products, if certified clean, may be marketed after fumigation with hydrocyanic acid under official supervision; if found to be infected they will be destroyed.

(4) Every consignment, even of a single tree, must be accompanied by a certificate conforming with the inspection report and issued by the local authority. For establishments certified clean white forms will be used; for those infected a red form which will indicate that the product comes from an infected establishment but has been disinfected with hydrocyanic acid.

(5) For foreign export are admitted only those products which come from establishments and regions absolutely free from the San José scale. It is for this reason that it is forbidden to introduce into healthy establishments fumigated plants coming from infected establishments.

(6) A healthy establishment wishing to send a consignment abroad must inform the Entomological Station. The Station will send an expert to inspect the products during picking and packing and will affix seals to the packages and wagons and issue a certificate.

It will not be possible now to discover the source of the infection of Hungary. The country has never had direct dealings with America in the importation of nursery garden products and is not having such to day. Since, moreover, there are reasons which lead the Hungarian experts to exclude the possibility of the pest having been introduced in consignments of fruit, the only solution remaining is that it entered in the imports, which have always been considerable, of cuttings and other nursery garden products coming from a European country into which the San José scale has been introduced from America without having been detected. The Entomological Station is continuing the investigation of the subject while carrying on the work of control.

The San José scale has not by any means infested the whole of Hungary. With the exception of the two centres of infection in the Comitát of Vas (Szombathely region) and the Comitát of Csongrád-Csanád (Szeged region) the greater part of the country is still free. Only a small number of young trees have been infected which in recent years had been bought in infected regions before the pest had been detected and controlled. The complete suppression of the pest remains easily within the bounds of possibility.

Poland: Wheat Attacked by Black Rust (*Puccinia graminis*) in 1932 (1).

From the southern part of Poland a serious outbreak of black rust (*Puccinia graminis* Pers.) is reported. The greatest losses occurred in the counties of Kielce, Lublin, Cracow, Lwow, Tarnopol, Volhynia, Silesia and certain districts in the adjoining counties of Stanisławów and Łódź. It is the main wheat growing region of Poland which supplies the other parts of the country where rye is the chief crop. Fortunately Poznań, Pomerania and the western part of the county of Warsaw, where wheat is also extensively grown, have escaped the rust.

It is remarkable that at the same time the absence is reported of the rust on rye, the most important grain crop in Poland and usually seriously attacked by this disease in certain regions of the country (Lublin).

It might be said that the biologic form of the indigenous black rust which particularly attacks rye has been replaced by biologic forms attacking wheat.

All the varieties of wheat grown have been about equally affected. More serious damage to barbed than to barbless wheat was occasionally observed.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Spain. — A Decree of 16 June 1932, contains regulations concerning the control of diseases and pests of the olive tree and rules for obtaining the efficient manufacture of olive oils.

(1) Communication from the official correspondent of the Institute, Dr. I., GARBOWSKI, Chief of the Plant Diseases Section of the National Institute of Agriculture, Bydgoszcz.

The following are the articles relating to diseases and pests of the olive :—

Art. 1. — Chiefs of Agronomic Sections who become informed of the occurrence of a disease or pest shall, together with the technical staff appointed for the purpose, inspect the attacked zone to determine the nature of the outbreak.

They shall make public the existence of the outbreak by all possible means ; they shall draw up and distribute in each zone leaflets of information setting forth in a clear and practical form the nature of the disease or pest and methods of prevention and control ; as many lectures and practical demonstrations as possible shall be given to interest and guide olive growers in control measures and to inform them of their legal obligations.

Art. 2. — The use of fumigants must be under the direction of the agronomic technical staff or of officials in possession of a certificate stating them to be trained in their use issued by the Phytopathological Stations, which shall organise the greatest possible number of rapid courses in the zones attacked.

When the outbreak is not of the kind to be controlled by fumigation the Agronomic Sections shall rapidly instruct the greatest possible number of labourers or olive growers in the preparation of insecticides and in the use of the necessary control equipment.

Art. 3. — The Agronomic Sections shall make widely known among olive growers the address and conditions of working of the firms which undertake fumigation and shall supply the latter with all useful information with regard to the zones attacked, the severity of the outbreak, etc.

Art. 4. — All farmers are under the obligation to carry out the treatments indicated by the Agronomic Service within the specified time which will be published in the ' Boletín Oficial ' of the province and by any other means considered advisable.

Any grower who fails to comply with the above regulations may not oppose any person who shall under the orders of the Chief of the Agronomic Section carry out control operations at his expense and at risk of offence occupy the plantation for purposes of public utility during the time necessary for the application of the treatment and charge him with an account of the expenses incurred, payment of which will if necessary be enforced by court of law without prejudice to the penalties liable under the agricultural diseases and pests law now in force.*

Art. 5. — Agricultural Chambers, labourers associations, agricultural syndicates and other rural associations legally established in the province may undertake the carrying out of control operations in agreement with the owners of the plantations attacked, but in every case subject to supervision or inspection by the Government technical Service.

In cases in which the work carried out by such associations gives results which are satisfactory both as regards speed and efficacy, the Government expert concerned shall suggest to the competent authorities a grant proportional to the number of trees treated.

Art. 6. — The State may carry out the control free of charge as regards the equipment and insecticides used, for olive growers whose total income tax

does not exceed 25 pesetas per annum; the growers on their part will be under the obligation to assist the workers in carrying out the control treatments.

The Agronomic Sections shall require from the respective communes a list of the olive growers in each commune indicating the numbers of olives owned by each.

Art. 7. — When in possession of these facts the Agronomic Sections shall in drawing up the annual budget of expenses for control measures, allow the largest sum possible for giving effect to the regulations laid down in the present Decree, taking into account that the method used for the control of the olive fly (*Dacus oleae*) shall be the Berlese method recommended by the Central Phytopathological Station; the latter shall when any other process is considered to be better inform the 'Dirección General de Agricultura' which will provide new regulations to this effect.

Art. 8. — The cooperation that the State shall accord to the olive grower in the control of the olive fly (*D. oleae*) shall consist in supplying free of charge the insecticides, insecticide depôts, spraying apparatus and the technical personnel necessary for practical demonstrations of the process to be used. The growers shall provide the labour required.

Art. 9. — Agronomic Sections which have at their disposal fumigation gangs for the control of the 'arañuela' (*Liothrips oleae*) shall supply free of charge the tents, equipment for producing the hydrocyanic acid gas and the chief of the gang responsible for demonstrating the method of control to be used. The growers shall pay for the necessary labour.

Art. 10. — The cooperation of the State in the control of the olive leaf-spot ('repilo' or 'vivillo', *Cycloconium oleaginum*) shall consist in the gratuitous supply of the fungicides and the equipment required for applying them, also of an expert staff for giving practical demonstration of the treatment to be applied. After such demonstration the growers shall carry on the treatment on their own account.

Art. 11. — If the sum required for the control campaign as a result of this State cooperation exceeds the total of the receipts from the tax for pests and diseases earmarked for the purpose, the Agronomic Section shall inform the competent authorities indicating the amount of the difference so that they may meet the deficit.

Art. 12. — The State by the intermediary of its technical personnel shall effect any inspection necessary in order that the insecticides and fungicides used by the growers, agricultural associations and firms applying the control treatment, correspond with the required conditions of purity and are used in the right proportions and state.

The State shall also inspect the results of the treatments and shall take any steps considered necessary in case of defective procedure.

Art. 13. — In conformity with the regulations in force it shall be prohibited to sell insecticides and fungicidal preparations which are not accompanied with a certificate stating that they have been tested and approved by the competent Government Service.

Art. 14. — In view of the fact that the propagation of the olive fly (*D. oleae*) is mainly due to the crop being harvested too late, the chief experts of the Agronomic Sections in agreement with the Chambers of Agriculture shall decide for the respective zones, taking into consideration the climate, the varieties grown and the ripeness of the fruit, the date by which the crop must be picked, and that shall correspond with that settled for the latest variety and the coldest region in the province. The date decided on will be made known to the growers by the means specified in Art. 4. It will be liable to modification if the Agronomic Section in agreement with the Chamber of Agriculture considers it advisable in consequence of unexpected circumstances.

Art. 15. — At the end of the time officially fixed for the harvest if it shall be ascertained that any grower has not yet begun or has interrupted the picking of his crop without a cause considered justifiable by the Agronomic Section, the latter may immediately occupy the plantation to pick the fruit, charging the owner with an account of the expenses incurred. The Agronomic Section will have authority to resort to legal measures to enforce payment of the sum.

The local Committees for giving agricultural advice shall supply the Agronomic Sections with a list of any olive growers to whom the preceding paragraph is applicable. (*Gaceta de Madrid*, Madrid, 18 junio 1932, año CCLXXI, tomo II, núm. 170, págs. 2007 a 2009).

France. — By Ministerial Decree of 2 August 1932 the regulations contained in article 1 of the Decree of 8 March 1932 [see this *Bulletin* 1932, No. 4, p. 57] relating to measures for preventing the introduction into France of the San José scale (*Aspidiotus perniciosus*) are to apply to consignments coming from Austria and Hungary. The entry into and transit in France of fresh fruits coming from Austria and Hungary may take place only by way of the Customs Office of Kehl-Strasbourg. (*Journal Officiel de la République Française*, Paris, 5 août 1932, LXIV^{ème} année, n. 182, p. 8581).

Italy. — By Law No. 967 of 3 June 1932, the Royal Decree-Law No. 197 of 19 March 1932 giving full and entire effect to the Convention of Commerce and Navigation between Italy and Spain settled at Rome on 15 March 1932 [see this *Bulletin*, 1932, No. 4, pp. 58-59], has been made Law. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 19 agosto 1932, anno 73^o, n. 191, p. 3754).

* * By Ministerial Decree of 10 June 1932 the commune of Pietracupa in the province of Campobasso has been declared infected with grape phylloxera. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 22 giugno 1932, anno 73^o, n. 143, p. 2970).

* * By Ministerial Decree of 4 July 1932 the commune of Rapolano in the province of Siena has been declared infected with grape phylloxera. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 13 agosto 1932, anno 73^o, n. 187, p. 3711).

* * * The Ministerial Circular No. 271 of 4 July 1932 contains the regulations governing exportation of plants and plant parts to Argentina in conformity with the Decree No. 03071/292 of 6 May 1932, which will come into force on 6 November 1932 in the Republic of Argentina. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 1^o agosto 1932, anno IV, n. 15, pp. 2214-2215).

Latvia.— The Administration of Agriculture published on 25 April 1932 regulations concerning the control of preparations against plant diseases and pests.

The Ministry of Agriculture exercises a control over the commerce in such products. Any fungicide or insecticide intended for commerce must be submitted to biological testing at the expense of the person concerned.

The Faculty of Agriculture of the University of Latvia and the Plant Protection Institute are responsible for carrying out the tests. A special committee will decide on the basis of the results of the trials whether or not a tested preparation shall be placed on the market.

On applying for a test the persons concerned shall state in writing the composition of the product and guarantee that this composition will be maintained.

It is forbidden to place on the market a product under a name not corresponding with its nature, or a patented product under a name other than that in which it is registered or to attribute to products qualities which have not been officially tested.

Toxic products must be made recognisable by means of a striking colour and a death's head must be affixed to the package. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Juliheft, S. 1501-1502).

Morocco (French Zone). — By Decree of the Director [General of Agriculture, Commerce and Land Settlement dated 12 August 1932 the following regulations are established :—

Art. 1. — All sellers of sulphur must show on the delivery note or on the invoice, on the wrappings, containers or packing material, and on the advertisements, posters or price lists, the degree of fineness calculated in French silk mesh.

Art. 2. — The different forms of sulphur, indication of which must be given in conformity with the conditions specified in the preceding article, must correspond to the following characteristics :—

Sublimated sulphur or flowers of sulphur. — Product containing at least 98.5 % of pure sulphur, at most 0.5 % of ash and 0.5 % of moisture. This product must be constituted of amorphous particles in the form of utricles and of crystals; the proportion of the latter not exceeding 10 to 12 %. The proportion of insoluble sulphur in carbon disulphide may vary between 12 and 33 %.

Triturated or ground sulphur. — Product containing at least 97 % of crystalline sulphur and at most 2 % of ash and 0.5 % of moisture.

Precipitated sulphur. — Product composed of very fine particles containing no crystalline sulphur. The pure sulphur content must correspond to that guaranteed by the seller, within a maximum variability of 2 %.

Other sulphur products: native sulphur, black sulphur, cupric sulphur, etc.— The free sulphur content of these products must be shown in accordance with the conditions specified in the preceding article. Also, in regard to cupric sulphur, the proportion of metallic copper contained must be mentioned in accordance with the provisions of the Decree of 12 June 1931 relating to the trade in copper compounds [see this *Bulletin*, 1931, No. 9, p. 167]. The nature of the chemical combination in which the copper is present must also be shown.

Colloidal sulphur.— This product must be stable and without deposit, and must be clear when diluted with distilled water. Its density at 20° C. and the degree of dilution at which it is to be used must be indicated in accordance with the prescriptions of the preceding article.

Art. 3. — The regulations of the Decree of 12 June 1931 relating to the trade in sulphur [see this *Bulletin*, 1931, No. 9, p. 167] are annulled. (Empire Chérifien. Protectorat de la République Française au Maroc. *Bulletin Officiel*, Rabat, 19 août 1932, XXI^{ème} année, n° 1034, p. 963).

Netherlands (The). — On 7 September 1932, the Minister of the Netherlands at Rome deposited in the Royal Ministry for Foreign Affairs the ratification by his Government of the International Convention for Plant Protection, which was signed at Rome on 16 April 1929 [see this *Bulletin*, 1929, No. 4, pp. 50-55], accompanied by a declaration concerning the institutions referred to in Art. 2, Nos. 1 and 2, of the Convention (Art. 22). (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 29 settembre 1932, anno 73^o, n. 226, p. 4340).

Rumania. — On 15 August 1932 the Chargé d'Affaires of Rumania at Rome deposited in the Royal Ministry for Foreign Affairs the ratification by his Government of the International Convention for Plant Protection, which was signed at Rome on 16 April 1929 [see this *Bulletin*, 1929, No. 4, pp. 50-55], accompanied by a declaration concerning the institutions referred to in Art. 2, Nos. 1 and 2, of the Convention (Art. 22). (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 29 settembre 1932, anno 73^o, n. 226, p. 4340).

Yugoslavia. — By Ordinance No. 18300/II of 2 April 1932 the Minister of Agriculture has regulated the seed control in the following manner:—

Seed control for the internal commerce is carried out in accordance with the regulations approved by the VIth International Seed Control Congress which met at Wageningen 13 to 17 July 1931.

Every consignment for importation must be accompanied by the statement required by the international agreements. For seed of cereals, clover, lucerne, sainfoin and beet the statement must be coloured orange; for any other kind of seed it must be coloured blue. The statements must be written in French, English or German.

If the Yugoslav officials responsible for seed control find any statement issued by a foreign control station does not conform with the international requirements the statements of such station will not in future be accepted.

The importer must provide each consignment with a statement corresponding with the international regulations, which must be presented at the customs office. The latter will confirm that the statement is in conformity with requirements and on so finding will forward the consignment to the consignee. The customs office will also add the necessary indications on the statement and forward it to the competent control station.

Consignments will be delivered to the consignee without removal of samples. The control station however has the right to effect further inspection. Such inspection will be free of charge. Only in the case of consignments not being accompanied by an international statement will they be inspected on entry.

This Ordinance came into force one month after its official publication. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Juliheft, S. 1493-1494).

* * By Decree No. 22450/II of 22 April 1932 the Phytopathological Station of Sarajevo has been authorised to inspect living plants and plant waste imported or in transit. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Juliheft, S. 1489).

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[The deterioration is due to a combination of causes:— troubles of a physiological character, *Platyedra gossypiella*, *Earias biplaga*, *E. insulana*, *Syagrus rugiceps*, *Heliothis obsoleta*, *Diparopsis castanea*, *Pyroderces simplex*, *Dysdercus cardinalis*, *Oxycarenus hyalinipennis*, *Empoasca facialis*, *Aphis gossypii*, *Heliothrips indicus*, *Ramularia areola* (?), *Uredo Gossypii*, *Bacterium Malvacearum*, etc.].

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INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

North Africa: Desert Locusts (*Schistocerca gregaria*) (1).

ALGERIA.

- 1 July 1932 — A somewhat large swarm over Tabelbala.
2 " " — A pink swarm 10 × 4 km flying S. passed 60 km S. E. of Messad.
4 " " — A pink swarm 3 km in length flying N. passed 7 km W. of Fort Lallemand.
5 " " — A pink swarm coming from the S. settled at In-Salah.
7 " " — Hoppers migrating 20 km S. E. of Tebessa.
8 " " — A pink swarm 30 km in length flying N. W.- S. E. passed 35 km N. of Ghardaïa.
15 " " — A large yellow swarm coming from the S. settled in the territory of Beni-Abbès.
21 " — A swarm 20 km in length flying W. passed over the douar of Sidi-Abid (Tebessa).

TUNISIA.

- 1 July 1932 — A pink swarm of 8 sq. km coming from the S. settled 55 km S. E. of Thala, taking flight towards the S.
16 " " — A pink swarm flying S.-N. passed 75 km S. of Thala.
17 " " — A pink swarm flying W.- S. E. at 55 km S. E. of Thala.
19 " " — A pink swarm 20 km in length flying S.- N. W. passed over Thala.
20 " " — A large pink swarm passed N. E.- S. W. between Thala and Haidra.

MOROCCO.

- 12 July 1932 — A pink swarm of 6 sq. km 52 km S. W. of Rich.
19 " " — A pink swarm of 20 sq. km 22 km S. S. E. of Ait-Ouir.
24 " " — A pink swarm 24 km S. of Amizmiz.

* * *

During August 1932, no information was addressed to the Regional Station at Algiers from Algeria, Tunisia, Morocco and Tripolitania.

* In this, as in the next chapter, the countries are arranged in French alphabetical order.

(1) Communication from the Government General of Algeria (Direction des Services Economiques) to the International Institute of Agriculture.

French West Africa: Desert Locusts (*Schistocerca gregaria*) in Mauritania (1).

- 4 July 1932 — A large pink swarm flying S. E.-N. W., passed 100 km E. of Chinghetti.
5 " " — Small pink swarms 80 km to N. E. of Atar and over Atar.
7 " " — Pink swarm flying S. E.-N. W. over Atar.

Egypt: Desert Locusts (2).

No swarms of *Schistocerca gregaria* were observed in Egypt during July and August, 1932.

Eritrea: Tropical Migratory and Desert Locusts (*Locusta migratorioides* and *Schistocerca gregaria*) (3).

During July 1932, numbers of swarms of locusts were reported over the whole territory of the Colony.

The swarms, which consisted almost entirely of *Locusta migratorioides*, came from the Anglo-Egyptian Sudan and from Abyssinia.

On 3 July a dense swarm of dark brown locusts coming from Omager flew in the direction of Barentú; another about 2 kilometres in length and over 1 km. in breadth, consisting of yellowish insects and also coming from Omager flew towards Ducambia, where it settled. On the 4th it was seen near Barentú.

On 4 July dark coloured locusts coming from the Adi Abò flew towards Faulinà. On the 5th yellowish locusts coming from the Bircutan passed over the Sittona. This swarm was about 200 metres wide by 400 metres long.

From the 3rd and practically throughout the month swarms of reddish brown locusts coming from the Anglo-Egyptian Sudan, after stopping some time in the plain of Tessenei and laying eggs in the land between the Barbarú mountains, Cassalom and the Gasc, flew in an easterly direction.

Towards the third decade of the month these locusts were reported first in the territory of Agordat, then in the district of Cheren.

After circling for a short time in the latter region they flew towards the eastern plain where they joined a small group of pinkish locusts coming from the north and flying in the direction of the Tabeh valley, which was reported on 1 July from the small post of Carora.

(1) Communication from the Government General of Algeria (Direction des Services Economiques) to the International Institute of Agriculture.

(2) Communication from the Chief Entomologist, Plant Protection Section, Ministry of Agriculture, Giza, to the International Institute of Agriculture.

(3) Communication from the official correspondent of the Institute, Dr. A. DE BENEDICTIS, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

From 13 to 27 July reddish locusts circled about the plain of Sabarguma and in the territory of Massawah.

At Assab on the 18th a swarm coming from inland flew towards the Red Sea.

During the whole month across the Mareb and the Belesa the upland plateau was invaded by numerous swarms of locusts, mostly reddish and coming from Abyssinia.

On the 2nd eggs were laid in the Hazamò, on the 9th in the Gundet, on the 6th, 11th and 26th in the Tzellimà (Seraè).

Towards the middle of the month numbers of hoppers made their appearance in the Seraè, the Acchelè Guzai and the territory of Cheren.

Slight damage was reported to the crops of doura (*Andropogon Sorghum*) and bultuc (*Pennisetum typhoideum*) at Barentú, Telè, Tarchinà (western plain) and in the territory of Cheren; to maize and dagussa (*Eleusine coracana*) in various localities of the Seraè.

Slight damage was also ascertained at the end of the month in the Hamasien.

In the Dorfù valley many banana plants were damaged; in the Lamza and the Sahartí damage was done to the wheat, taff-grass (*Eragrostis abyssinica*) and natural pasture.

The numerous centres of hoppers discovered were destroyed by natives and by the specialised staff for the purpose.

It was observed that the swarms had a length and breadth varying from a few hundred metres to over 2 km.

The prevailing direction of flight was from south-west to north-east.

Many groups of hoppers were destroyed by birds (sparrows and starlings).

The swarms were in most cases followed by numbers of storks (rasà).

Hatching of hoppers was reported over extensive areas in the territories over the Ethiopian frontier where no control work was undertaken.

During August 1932 eggs were deposited in numerous localities in the Colony and hoppers appeared in large numbers almost everywhere.

Numbers of swarms made up mainly of *Locusta migratorioides* flew over the upland plateau and the east and west lowland plains.

From 1 to 6 August swarms of a reddish-brown or yellowish colour, or of a colour not specified, coming from the Anglo-Egyptian Sudan, were reported by the small post of Carora (eastern lowland plain) flying south. On 3, 6 and 8 August swarms of a yellowish colour flew over the plain of the Damas and the Agametta in the direction of the upland plateau.

On 3, 4 and 5 August dense swarms of a reddish-brown were reported in the territory of Hamasien.

On 4 and 7 August two reddish swarms coming from the Tigráí passed over the Gundet, one flying north-east, the other north-west. On 13, 16 and 20 August other swarms coming from the Adiabò invaded the territory between the Gasc and the Setit. In the vicinity of Agordat and of Cheren numbers of swarms were reported during the month.

On 18 August a yellowish coloured swarm of *Schistocerca gregaria* coming from the Aidereso flew in the direction of the valley of the Dorfù, circling

for two days over the region. On 21 August yellow locusts coming from the Levant, perhaps from across the Red Sea, settled near Cub-Cub. On 22 August more locusts coming from Ailet flew in the direction of the Tabò valley. On 28 August a swarm of *Schistocerca* coming from the Merettà Sebenè, after keeping along the Mareb settled in the Tzellimà.

It was noted that in general the swarms had a length of approximately one and a half kilometres and a width of 500 metres, with the exception of one swarm coming from the north and flying south-west which was 5 kilometres in length and 1700 metres in breadth. This last was reported on 23 August in the region of Adi Quala.

Nearly all the swarms reported were at some metres from the ground.

Eggs were laid in the neighbourhood of Ducambia, Barentù, Biscia (western lowland plain), in the valley of the Cher-Gher (Cheren), in the Gundet (Seraè) and in the valley of the Tabeh (eastern lowland plain).

Hatching of numbers of hoppers, nearly exclusively of *L. migratorioides*, was reported at Sabderat, along the Gasc, in the vicinity of Biaghela, in the Upper Barca and in the districts of Cheren and Massawah.

In the western lowland plain from 5 to 25 August numerous swarms of *L. migratorioides* coming from the east crossed the frontier flying west.

During August about 500 ha sown with doura (*Andropogon Sorghum*) were damaged in the region of Barentù, along the Gasc and in the Upper Barca (western plain); about 600 ha sown with doura, maize, taff-grass (*Eragrostis abyssinica*), dagussa (*Eleusine coracana*) and wheat (high plateau) and pasture in the valleys of the Tabò and Damas were damaged.

During the whole month hoppers were being destroyed and eggs and adults being collected.

United States of America: Tobacco Downy Mildew in 1932 (1).

Tobacco downy mildew (*Peronospora hyoscyami*), which caused so much alarm among tobacco growers throughout the eastern part of the United States in 1931 but which did little actual commercial damage that year, proved to be both more widely distributed and more destructive this season.

By the end of January, the disease had been found on two beds of volunteer plants in southern Georgia. Towards the end of February, the presence of the disease was reported in Robeson County, North Carolina, near the South Carolina line. About this time, also, it appeared in a number of beds in Madison and Gadsden Counties, Florida, and by March 8 was general throughout the entire shade tobacco section of that State and was known to be widespread in nine Georgia counties.

Surveys made during the first week in April showed the disease to be generally present throughout the tobacco growing regions of Florida, Georgia, South Caro-

(1) Communication from the official correspondent of the Institute, Dr. Neil E. STEVENS, Senior Pathologist, Plant Disease Survey, Bureau of Plant Industry, United States Department of Agriculture, Washington.

lina, and the coastal counties of North Carolina. It was evident by this time that more plants were being killed than during the epidemic of 1931 but there was no way of estimating the extent of the loss. As perhaps significant of the wider spread of the fungus it may be noted that during 1931 it was not reported in any county in South Carolina while this year it was reported from seven counties. Losses from the disease were especially severe in Florence County, South Carolina, where in some cases two-thirds of the plants in a single bed were destroyed. Conditions reached almost the panic stage and growers were reported sprinkling their beds with Bordeaux mixture from sprinkling cans, washtubs, and pails.

By the middle of April, the disease had spread throughout North Carolina, east of Raleigh. Experienced observers reported that approximately one-third of the seed beds throughout this area were badly affected and some severely damaged. On May 31, the disease was found for the first time this year in two tobacco beds in Prince Georges County and by that time it had become more or less serious in ten counties in the southern part of Virginia.

Surveys during the first week in June showed the presence of downy mildew in 4 counties in Maryland, and in 14 counties in Virginia. The high water mark was reached on June 15, when downy mildew was found in two seed beds on one farm in Lancaster County, Pennsylvania. In one of these beds from 2 to 20 % of the plants showed downy mildew. In the other one only a few were affected.

The actual amount of damage caused is, as usual, very difficult to estimate. In Georgia and North Carolina the shortage of plants, caused by the disease, was so serious as to materially retard planting. The shortage was particularly serious in Georgia where many growers were unable to plant entire fields at one time, which resulted in an uneven stand. In extreme cases, the tobacco first planted was ready to harvest while that at the other side of the field was only a few inches high, resulting not only in loss of yield but quality as well.

India: Some Fungal Diseases of Farm Crops Recently Discovered in the Punjab (1).

1. *Phyllosticta rabiei* (Pass.) Trotter has been isolated from the diseased gram plants as one of the fungi which cause the Blight disease in gram (*Cicer arietinum* L.) in North Western parts of the Punjab.

2. A Red Leaf Spot disease of Jowar (*Andropogon Sorghum* Brot.) and Sudan grass (*Andropogon Sorghum* var. *sudanensis* Leppan and Bosman) has been found to occur commonly in many places in this Province. The causal fungus has been identified as *Colletotrichum graminicolum* (Ces.) Wils. = *C. lineola* Corda.

(1) Communication from the official correspondent of the Institute, Mr. Rai Sahib Jai Chand LUTHRA, M. Sc., D. I. C. (Lond.), I. A. S., Professor of Botany, Punjab Agricultural College, Lyallpur, India.

Studies made on the life history of the fungus have shown that the disease is seed-borne. Several methods for control of the disease by treatment of the seed grain are being tried.

3. Shaftal (*Trifolium resupinatum* L.), an important leguminous fodder crop has been found affected by a fungus related to *Uromyces Trifolii* (Hed.) Lév.

Three stages of the fungus, i. e., Teleuto, Uredo, and æcidial have been recorded.

Polythrincium Trifolii Kze. often occurs on leaflets associated with *Uromyces*.

4. *Tilletia indica* n. sp. has been found in wheat samples collected in the Ambala district.

5. *Striga euphrasioides* Benth., an angiospermic root parasite has been discovered on Sudan grass (*Andropogon Sorghum* var. *sudanensis*) besides on Sugarcane and Jowar (*Andropogon Sorghum*).

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Ordinance of 8 July 1932 the provisions of the Ordinance of 3 November 1931 concerning the San José scale [*Aspidiotus perniciosus*] and the apple maggot [*Rhagoletis pomonella*] [see this *Bulletin*, 1932, No. 2, pp. 24-25] have been extended to include consignments coming from Austria and Hungary. (*Reichsgesetzblatt*, Teil I, Berlin, 18. Juli 1932, Nr. 45, S. 351).

Germany (Anhalt) (1). — By Police Ordinance of 14 July 1932, with a view to the control of asparagus pests it is prescribed that each year asparagus shoots must be cut down before 15 December and burnt on the field. The lower part of the stems remaining, which must not exceed 10 cm in length, must be covered with soil and after being uncovered in the following spring must be burnt before 5 April.

It is forbidden to carry away from the plantation the aerial parts of asparagus plants with the exception of berries for seed purposes.

Western Australia. — On the 27 July 1932 (Agric. No. 2070/25; Ex. Co. No. 1275) the Director of Agriculture notified that Double Gee (*Emex australis*) has been declared a noxious weed within the boundaries of the Victoria Plains Road Board District. (*Government Gazette of Western Australia*, Perth, July 29, 1932, No. 36, p. 1089).

Austria. — The Decree No. 222 of 18 July 1932, which came into force on 16 September 1932, fixes the restrictions on importation and transit of plants with a view to preventing the introduction of serious diseases and pests.

(1) Communication from the Biologische Reichsanstalt für Land-und Forstwirtschaft, Berlin-Dahlem, official correspondent of the Institute.

Importation and transit of consignments of any sort attacked by a serious disease or pest and capable of causing the introduction of this disease or pest are forbidden.

The Federal Station for Plant Protection at Vienna and its delegates are to inspect consignments coming from abroad, verify the accompanying certificates and retain at the customs offices any consignments not complying with the phytosanitary requirements, until the Federal Ministry of Agriculture and Forests shall decide whether or not the consignments are admissible for importation or transit.

The present Decree carries no modification of the special measures in force relating to potato wart disease (*Synchytrium endobioticum*) and grape phylloxera (*Phylloxera vastatrix*).

As regards the San José scale (*Aspidiotus perniciosus*) and the apple maggot (*Rhagoletis pomonella*) the present Decree allows importation of fruit trees and shrubs and trees and shrubs with deciduous foliage, including seedlings, suckers and cuttings, on condition that the consignment is accompanied by a certificate issued by the official plant protection service of the country of origin stating that the consignment has been inspected and found free from serious diseases and pests, that it has been disinfected with hydrocyanic acid and that the Federal Ministry of Agriculture and Forests on specific request of the importer has consented to importation.

Any consignment of fresh apples and pears and of apple or pear waste must be accompanied by an official certificate stating that it has been inspected and found free from the San José scale and the apple maggot.

The regulations relating to these two insects are not applicable to consignments in transit provided that the packages are well closed and undamaged or that the wagons are sealed and the consignments addressed directly from one foreign country to another. Other products exempt from these regulations are:—cut flowers, fresh fruits (excepting apples and pears), preserved or dried fruits, vegetables, roots, tubers (potatoes), bulbs, rhizomes and other subterranean parts of plants, and seeds.

A series of special regulations relates to the Colorado potato beetle (*Leptinotarsa decemlineata*).

Importation and transit of fresh potatoes coming from a country where the Colorado beetle occurs are forbidden.

Importation and transit of fresh potatoes having passed through a country infested with the Colorado beetle is allowed only with a special permit accorded by the Federal Ministry of Agriculture and Forests. Consignments from abroad of plants with roots or with soil, bulbs, roots, rhizomes and tubers (except potatoes) must be accompanied by an official certificate from the country of origin stating that the consignment is free from Colorado potato beetle and that this insect does not occur in or within a radius of 100 km of the commune of origin. The same regulation applies in the period from 15 March to 14 November to all kinds of vegetables, tomatoes, eggplants and strawberries.

The countries at present considered as infested with the Colorado potato beetle are the United States of America, Canada and France, not including Corsica

and Departments of France not on the mainland. The phytosanitary certificates mentioned in this Decree must be drawn up in the language of the exporting country and in German. They must be dated not earlier than three weeks previous to the date of consignment.

The Decrees of 29 April 1875, of 31 December 1926, of 2 December 1927, of 26 January 1929 and of 15 June 1929 are annulled. (*Bundesgesetzblatt für die Republik Österreich*, Wien, 13. August 1932, 62. Stück, Nr. 222, S. 691-694).

Brazil. — On 19 October 1932, the Ambassador of Brazil at Rome deposited with the Italian Ministry for Foreign Affairs the ratification by his Government of the International Convention for Plant Protection, signed at Rome on 16 April 1929 [see this *Bulletin*, 1929, No. 4, pp. 50-55], accompanied by a declaration concerning the scientific institutions referred to in Article 2, Nos. 1 and 2, of the Convention (Art. 22). (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 29 ottobre 1932, anno 73^o, n. 251, pp. 4936-4937).

Spain. — By Decree of 1 August 1932 the regulations governing the new Instituto Forestal de Investigaciones y Experiencias were approved.

The research and experiments of the Institute are divided into 13 independent Sections, amongst which are Sections for Entomology, Land Vertebrates and Plant Pathology. (*Gaceta de Madrid*, Madrid, 5 agosto 1932, año CCLXXI, tomo III, núm. 21, págs. 951 a 954).

France. — A Decree of 12 October 1932 provides for the reorganisation of the Plant Protection Service.

The purpose of the Service is to ensure: (1) The scientific study of plant diseases and pests, research and experiments with control methods (phytopathological research entrusted to the central and regional stations of the Institute of Agronomic Research formed into centres of phytopathological research); (2) The sanitary supervision of plant production, the distribution of knowledge of the treatments to be used, the practical organisation of permanent and voluntary defence against diseases and organisms harmful to plants and plant products (permanent and voluntary defence against crop diseases and pests ensured by the farmers concerned and their organisation into groups when necessary with the aid of the State, of departments, communes, agricultural chambers, agricultural offices, etc.); (3) The control of the execution of the legalised measures for control of plant diseases and pests, the phytosanitary supervision of importations and exportations, the phytosanitary control of the markets, the control of marks of origin, the control of the standardisation of products and their packings (phytosanitary police ensured by a special Service consisting of a staff of permanent officers and a temporary personnel recruited as the Service demands and within the limits of the amount allocated for the purpose in the Ministry of Agriculture's budget); (4) The issue of phytopathological certificates ('certificat de santé-origine' [certificate of original healthy condition] and 'certificat phytosanitaire') and the supervision of the farms from which the products come.

A Consultative Committee for Plant Protection is established under the 'Direction de l'Agriculture'. An Order of the Minister of Agriculture will fix the functions of the Committee.

An Inspector General of Agriculture specially appointed for the purpose by the Minister of Agriculture is responsible for the coordination of the whole Service (phytopathological research, permanent and voluntary defence against crop diseases and pests, phytosanitary police). He is responsible for the satisfactory working of the services, requests instructions from the central Administration and in urgent cases gives the necessary instructions himself and reports them to the Minister.

The Decree of 30 September 1927 [see this *Bulletin*, 1927, No. 11, pp. 178-179] is annulled together with any previous regulations contrary to those of the present Decree. (*Journal Officiel de la République Française*, Paris, 15 octobre 1932, L^{XIV}^{me} année, n° 242, p. 11075-11077).

Italy. — The Royal Decree-Law No. 913 of 23 June 1932 contains modifications of article 31 of the Law No. 987 of 18 June 1931 containing enactments relating to the protection of cultivated plants and agricultural products against diseases and pests and to the services relating thereto [see this *Bulletin*, 1931, No. 9, p. 166].

The modification of this article is for the purpose of obtaining better regulation of the methods of collecting the contributions established by the 'Consorti' for crop protection, and of the obligations and responsibilities of the collectors and of the provincial receivers. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 9 agosto 1932, anno 73° n. 183, pp. 3658-3659).

*** By Ministerial Decrees of 18 July 1932 the communes of Montepandone, in the province of Ascoli Piceno, and Valva, in the province of Salerno, have been declared infected with grape phylloxera. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 29 luglio 1932, anno 73°, n. 174, p. 3545).

*** [By Ministerial Decrees of 20 July 1932 the compulsory Syndicates Consorti for olive fly [*Dacus oleae*] control have been reorganised for the communes of Altavilla Milicia, Torre Palma Baida, Termini Imerese and Trabia in the province of Palermo.

Each Syndicate will function for five years from the date of reorganisation. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 16 settembre 1932, anno IV, n. 18, pp. 2704-2709).

*** By Decree No. 37028 of 5 August 1932 the Prefect of the province of Catania has made it obligatory to cut off and burn any branches of lemon trees attacked by the 'mal secco' [*Deuterophoma tracheiphila*] in the communes of Belpasso, Castiglione di Sicilia, Gravina, Misterbianco, Paternò, Tremestieri Etneo. Holders of land on which there are diseased trees will be held responsible for carrying out the destruction. (*Il Coltivatore Siciliano*, Catania, settembre 1932, anno XI, n. 9, p. 265).

Morocco (French Zone). — A Decree of the Director General of Agriculture, Commerce and Land Settlement, dated 10 June 1932, contains the following measures relating to the destruction of the Mediterranean Fruit-fly [*Ceratitis capitata*].

Art. 1. — The persons specified in Art. 4, of the Vizirial Decree of 18 April 1932 [see this *Bulletin*, 1932, No. 7, pp. 112-113] must collect or provide for the collection of fruits fallen to the ground from the trees, shrubs or plants indicated below :—

(1) TREES AND SHRUBS.

(a) Family of the Aurantiaceae. — Seville orange (*Citrus Bigaradia*), citron (*C. Medica*), lemon (*C. Limonum*), trifoliate orange (*C. triptera* = *Poncirus trifoliatum*), kumquat (*Fortunella japonica*), mandarin orange and its hybrids (*C. nobilis*), orange and its varieties (*C. Aurantium*), Chinese orange (*C. japonica*), Portugal orange and its varieties (*C. sinensis*), shaddock (*C. decumana*).

(b) Family of the Rosaceae. — Apricot (*Prunus Armeniaca*), almond (*P. Amygdalus*), azarole (*Crataegus Azarolus*), cherry (*P. Cerasus*), quince (*Pyrus Cydonia*), loquat (*Eriobotrya japonica*), medlar (*Pyrus germanica*), peach (*Prunus Persica*), pear (*Pyrus communis*), apple (*P. Malus*), plum (*Prunus domestica*), bullace (*P. insititia*), Japanese plum (*P. salicina*).

(c) Various Families. — Kai apple (*Aberia caffra*), cherimoyer (*Anona Cherimolia*), fig (*Ficus Carica*), pomegranate (*Punica Granatum*), jujubes (*Zyzyphus vulgaris*, *Z. Spina-Christi*), persimmons (*Diospyros decandra*, *D. Kaki*).

(2) HERBACEOUS PLANTS.

Eggplant (*Solanum Melongena*) ; tomato (*S. Lycopersicum*).

Art. 2. — Persons concerned must place in these trees and shrubs traps containing a bait prepared in accordance with the formulae established by the ' Direction générale de l'Agriculture, du Commerce et de la Colonisation ' (Crop Protection).

Art. 3. — After the crop has been picked any fruits remaining on the trees or shrubs and any waste fruits and fruits of herbaceous species found on the plants, on the ground or in any other place must be collected, sterilised or destroyed.

Art. 4. — Any plant products in any estate, orchard, garden, shop, packing shed, market, etc., found to be infested with the Mediterranean Fruit-fly, must be immediately destroyed or utilised in such a way that the killing of larvae is ensured, in default of which the products will be confiscated by officials of the ' Direction générale de l'Agriculture ' or by one of the authorities specified in Art. 34, of the Dahir of 20 September 1927, containing the plant sanitary police regulations for the French zone of the Sherifian Empire.

Art. 5. — Fruits from trees, shrubs and herbaceous plants collected on the ground or picked after the harvest, also fruit waste of the above-named species, must be buried in the ground, or mixed with, or covered with a 5 cm. layer of, quicklime and covered over with 60 cm. of soil.

Such fruits and fruit waste may also be sterilised by boiling for 15 minutes. (Empire Chérifien. Protectorat de la République Française au Maroc. *Bulletin Officiel*, Rabat, 24 juin 1932, XXI^{ème} année, n° 1026, p. 738).

** The Vizirial Decree of 31 August 1932 (28 rebia II 1351) regulating importation into Morocco of plants or plant parts capable of carrying the European corn borer (*Pyrausta nubilalis* Hübn.) provides as follows:—

Art. 1. — Importation and transit in the French Zone of the Sherifian Empire of the following are forbidden:—

(1) Living plants or culms, straw, leaves, roots, husks, rachides and inflorescences of maize (*Zea Mays* L.), of sorghums (*Sorghum vulgare* Pers. [= *Andropogon Sorghum* Brot.], *S. saccharatum* Moench [= *A. saccharatus* Kunth]) and of all other cultivated species of the genus *Sorghum* or *Andropogon*, of millet (*Panicum miliaceum* L., *P. italicum* L. [= *Setaria italica* Beauv.]) and of other cultivated species of the genus *Panicum*, and, in general, of any part or residue of these plants, with the exception of the fruits (*vulg.* seeds), of whatever origin;

(2) Any part or residue of plants of hemp (*Cannabis sativa* L. = *C. indica* Lam.), with the exception of seeds and fibre;

(3) Whole plants, living or dead, of Provence reed (*Arundo Donax* L.), or parts of this plant, with the exception however of peeled and sawn stems used in the making of packings;

(4) Products of any nature the packings of which are composed of the above-named plants or of parts thereof.

Art. 2. — Any consignment containing the products specified in the preceding article will be returned or destroyed, according to the wishes of the consignee or his representative, in accordance with the conditions contained in article 7 of the Dahir of 20 September 1927 (23 rebia I 1346). (Empire Chérifien. Protectorat de la République Française au Maroc. *Bulletin Officiel*, Rabat, 23 septembre 1932, XXI^{ème} année, n° 1039, p. 1103-1104).

Portugal. — On 30 October 1932, the Italian Ministry of Foreign Affairs informed the International Institute of Agriculture that Portugal deposited in the said Ministry on 28 May 1932, the ratification of the International Convention for Plant Protection, which was signed at Rome on 16 April 1929 [see this *Bulletin*, 1929, No. 4, pp. 50-55], accompanied by a declaration concerning the institutions referred to in Art. 2, Nos. 1 and 2, of the Convention (Art. 22).

Czechoslovakia. — The Government Ordinance No. 140 of 22 July 1932, based on the Law No. 165 of 2 July 1924 relating to plant production, makes the following institutions responsible for plant protection:—

(1) The Institute of Phytopathology attached to the State Agronomical Research Institutes at Prague, to act for Bohemia;

(2) The Phytopathological Section of the Agronomical Research Institute at Brno assisted by the State Agronomical Research Station at Opava, to act for Moravia and Silesia;

(3) The Institute of Phytopathology, Section of the State Agronomical Research Institutes, at Bratislava, to act for the western part of Slovakia. The eastern part will be undertaken by the Institute of Phytopathology, Section of the State Agronomical Research Institutes, at Košice.

The rights of control conferred on these Institutes may be executed through the intermediary of certain Agronomical Research Stations specially authorised for the purpose by the Ministry of Agriculture.

In order to establish an information service to report any danger to crops the Ministry in agreement with the Institutes concerned will nominate phytopathological observers. (*Sammlung der Gesetze und Verordnungen des čechoslovakischen Staates*, Prag, 16. August 1932, 47. Stück, S. 443-444).

Uruguay. — By 'resolución' of 19 May 1932, as from that date the services of ant destruction for which the 'Sección Fomento y Defensa Agrícola de la Dirección de Agronomía' has been responsible will be charged to the persons concerned. (*Ministerio de Industrias. Dirección de Agronomía. Publicación Mensual*, Montevideo, 1932, año IV, n.º 10, pág. 212).

*** By 'resolución' of 16 June 1932 *Ceratitis capitata* (Mediterranean Fruit-fly) and *Anastrepha fraterculus* (West Indian Fruit-fly) are declared agricultural pests. (*Ibid.*, pág. 212).

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[This publication, in which have collaborated: S. E. Principe Don Francesco Chigi della Rovere, Prof. Oscar De Beaux, Dr. Angiolo Del Lungo, Dr. Carlo Meschini and Dr. Giuseppe Urbani, contains 8 chapters and an appendix:—

1. Perché si devono proteggere gli uccelli. — 2. Come si devono proteggere gli uccelli. — 3. La protezione degli uccelli nel mondo. — 4. Principii di etica biologica. — 5. Gli Osservatorii ornitologici e l'inanellamento degli uccelli. — 6. L'agricoltura e la legge Acerbo. — 7. La caccia, branca della zootecnia. — 8. Proposte di protezione degli uccelli d'Italia per specie ed epoche.

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[This fifth contribution to the well-known and highly valuable monograph on the Laboulbeniaceae will be welcomed by all who are concerned with the study of these singular fungi. The work of R. Thaxter is in fact the most complete and most modern taxonomic guide on the subject that exists.

With this new part the author had intended to complete the series, including therein all the forms published or assembled after the appearance of the first two

parts. But the task became so heavy that it was found necessary to shorten the text, excluding the large gen. *Laboulbenia* and to reduce the number of illustrations. Unfortunately the recent untimely death of the author has prevented the realisation of his proposed scheme of publishing a final part illustrating the gen. *Laboulbenia* and other *addenda* not included in this volume, in connexion with a general survey and classification and an index of hosts.

In Part V of the monograph are included 90 genera, 32 of which are new to science. There are also numbers of new species.

The 60 plates including 1136 clear figures drawn by the author enhance the value of the work].

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[In Dutch, with title and summary in English. A. — *P. surinamensis* injurious to tobacco in Deli. B. — Damage by *Lepidiota stigma* to young tobacco. C. — Damage by *A. viridis* and *P. discedens* to fermented tobacco].

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NOTES

Committee of Propaganda for the Protection and Improvement of Crops in France. — With a view to the spread in France of the methods for improving farm yields by means of the protection of crops from diseases and pests which are in use throughout the world, a Committee has been formed in Paris for propagating the protection and improvement of crops. It publishes in *La Revue des Fruits, Légumes et Primeurs* a monthly bulletin to supplement the information issued by the Committee in the form of pamphlets, leaflets and posters.

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Algeria: *Phoma flaccida* on Vine (1).

Phoma flaccida Viala et Ravaz developed to an unusual extent this year in the vineyards of the plain of the Mitidja. Particularly in the localities of Rouïba, Réghaïa, Fondouck and Ménerville ** the losses alarmed growers little familiar with the disease and, the greater number of them, ignorant of its existence. The fungus is however not new to North Africa. But in this part of the vine-growing region of Algeria it had never previously developed so acutely or in the form causing injury to the raceme. It was in fact the lesions at the base of the grape stalk and its first branchings which at the beginning of August drew attention by causing the partial or total withering of the grapes.

The lesions are due to cortical necrosis characterised exteriorly by the well-known dark bands, often stretching round the whole circumference of the organ attacked and gradually strangling it. When the phloem is attacked the food supply is hindered and gradually cut off causing withering. In many cases the disease enters the raceme by the stalk at its point of insertion, that is, from the stem.

It is on the dark parts, or, as sometimes happens, on the parts whitened by empty cells, that the fructifications later appear in the form of black, spherical conceptacles containing unicellular, colourless spores which are shuttle-shaped $5-7\mu \times 10-18\mu$) and sometimes slightly curved and drawn out on one side.

The disease has made its appearance on all the varieties of *Vitis vinifera* grown in the region, but Aramon, Hybrides-Bouchet and Carignan seemed to be the most affected.

This *Phoma* has existed for a long time in the Mitidja, but it was mainly in its late form of whitened stems with black points that it was observed at the time of or after the grape harvest and was of little consequence. More rarely it was observed in the same region in the form of abrasions at the base of the ripened shoots. It may be added that for a number of years previously the disease had occurred on the grape stalks, but only in certain sporadic and endemic centres,

* In this, as in the next chapter, the countries are arranged in French alphabetical order.

(1) Communication from the official correspondent of the Institute, Mr. J. CHRESTIAN, Professor of Plant Pathology at the Agricultural Institute of Algeria.

** Further particulars of the extent of the invasion will be given later.

the best known of which is Ténès in western Algeria, which is the locality where it was identified by Dr. Trabut in 1913*.

Thus this species, which is essentially a stem parasite and somewhat sparse on the vine, this year has finally departed from its habit and has extended its area and spread further than usual on to the branches of its host.

Probably the weather may be regarded as responsible for this extension of this *Phoma*. The spring and summer of 1932 were less warm and wetter than normally. These conditions favoured the development of the fungus, which is generally late, and thus gave it the opportunity to travel further.

Growers whose vines have suffered from this *Phoma* propose to check the disease by winter treatments, at any rate those who have not hitherto thought it necessary to carry out such treatments, the use of which is becoming more and more general and may be said to be indispensable for one reason or another for every bush and tree fruit. The Crop Protection Service of Algeria will give any further information necessary to persons concerned.

Algeria: The Peach Twig Borer (*Anarsia lineatella*), a New Parasite for the Country (1).

The Crop Protection Service noted last spring in the orchard of the College Farm of Aïn-Témouchent, near Oran, the occurrence of a parasite of the peach, *Anarsia lineatella* Z., which is new to the fauna of Algeria though widely spread in Southern France and Central Europe. The damage of the insect is characterised by wilting followed by death of the new growth. Early in June the fruits are attacked. These, which are nearly ready for gathering, show a minute puncture at some point on the surface and a drop of gum marks the place where the parasite penetrated. The insect is readily detected in the pulp of the fruit.

A preliminary enquiry made during the course of the summer showed that the dispersion of the new moth was not limited to the single commune of Aïn-Témouchent, but extended also into the neighbouring fruit regions of Bou-Sfer, El-Ançor and Misserghin. The necessary measures were immediately prescribed.

Eritrea: Tropical Migratory and Desert Locusts (*Locusta migratorioides* and *Schistocerca gregaria*) (2).

During September 1932 a great number of locust swarms were reported and groups of hoppers in various localities in the western plain, the upland plateau and the eastern plain.

* The fungus from Ténès studied by Dr. Trabut and Dr. R. Maire was not identified as *Phoma flaccida* Viala and Ravaz but as *Phoma Cookei* Pirota, which is said by the writers to be closely related to *Phoma reniformis* Viala and Ravaz, which by many is thought to be synonymous with *Phoma flaccida*.

(1) Communication from the official correspondent of the Institute, Mr. DELASSUS, Crop Protection Inspector, Algiers.

(2) Communication from the official correspondent of the Institute, Dr. R. GUDOTTI, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

A single deposit of eggs was noted in the territory of Barentù at Selest Logodat on the 6th. The great majority of the swarms of adults and the hoppers belonged to *Locusta migratorioides*; the swarms of *Schistocerca gregaria* were small and scattered.

During September numbers of locusts also invaded the Colony from over the frontiers of Abyssinia and the Anglo-Egyptian Sudan. The territory between the Gasc and the Setit and that of Agordat and Barentù were crossed by numerous swarms of *L. migratorioides*.

On the 4th a swarm of *S. gregaria* about 300 by 400 metres passed over Agordat flying in a westerly direction; two other swarms, also of *Schistocerca*, were reported between the 18th and 20th towards Cheren and between Tessenei and Sabderat. Eggs were deposited however in the Dorfù valley and in the vicinity of Ghinda.

The hoppers of *Schistocerca* and *Locusta* on the breeding centres scattered over the whole territory of the Colony were for the most part killed by the local natives under the direction of a white personnel skilled in locust control.

The total damage was not very serious:—

In the western plain in the territory of Barantù about 60 hectares planted with doura (*Andropogon Sorghum*) and bultuc (*Pennisetum typhoideum*) and at Gulsa, near Tessenei, certain fields of doura; on the upland plateau in the Cohain and in the Mai Tzada (Seraè) about 50 hectares of doura, taff (*Eragrostis abyssinica*) and dagussà (*Eleusine coracana*); in the eastern plain some pastures.

United States of America: An Epidemic of Bacterial Wilt of Maize (1).

Bacterial wilt (caused by *Aplanobacter stewartii* (E. F. S.) McC.) of maize (Indian corn) unusually severe in many localities in 1930 and 1931, this year (1932) reached a degree of severity and extent of distribution in the northeastern United States probably not equalled in the history of Plant Pathology, and certainly the worst since Stewart published his description of the disease thirty-five years ago.

In connection with the various State reports briefly summarized below and particularly that of New York, interesting comparisons may be made with Stewart's statement of 1897 which is as follows:—

'The disease has been widespread on Long Island, N. Y. [during 1895, 1896, and 1897] and, in several instances, destructive, particularly in the season of 1897. Occasionally, an entire crop has been ruined and losses of from 20 to 40 per cent have been frequent'.

ILLINOIS: Losses worse in the present year than in any of which we have record, although in 1930 and 1931, it was very common and destructive.

(1) Communication from the official correspondent of the Institute, Dr. Neil E. STEVENS, Senior Pathologist, Plant Disease Survey, Bureau of Plant Industry, United States Department of Agriculture, Washington.

Sweet corn losses appear to run from 90 per cent in early market varieties to 30 per cent in the later canning varieties. Bacterial wilt is unusually prevalent in dent corn this year.

OHIO: Reported as unusually severe even as early as June 20.

WEST VIRGINIA: Epidemic during 1931 and 1932.

PENNSYLVANIA: 65 per cent of the sweet corn in Salem Township, Luzerne County, destroyed, also abundant in Wyoming and as far north as Susquehanna County. In Mercer County not a sweet corn patch which does not show from 30 per cent to as high as 90 per cent of the plants killed. In Armstrong County the disease was so abundant that infestations of 33 per cent appeared light. On one farm 99 per cent of the sweet corn stalks were killed.

NEW JERSEY: Large number of reports of the disease. Probably no more prevalent than in 1930. In the experimental plots at New Brunswick some of the plantings showed as high as 100 per cent infection.

NEW YORK: Before 1932 this disease was reported, except for a few isolated plants, only from the southern tier of Counties and on Long Island and in the Lower Hudson Valley. This year very severe, 40 per cent to 60 per cent infection on early varieties on Long Island, and equally severe in Rockland County, not far from New York City. Rather common along Lake Erie in Chautauqua and Erie Counties as far as Buffalo.

CONNECTICUT: The first commercial loss from this disease ever observed in the State. Certainly the first which has occurred in thirty years. Losses up to 20 per cent reported in the earliest varieties of sweet corn in the southern part of the State.

MASSACHUSETTS: Prior to this year only scattered diseased plants observed. Primary infections and consequent crop losses from 2 per cent to 5 per cent in the earliest varieties in the southern part of the State and within fifty miles of the eastern seaboard. Present but not serious in the northern Counties.

Throughout the areas it has been generally observed that the early planted sweet corn has been most seriously affected by the disease.

Dr. Charles Chupp of New York comments in a recent communication:—
'The combination of weather conditions must be unusual this season for I have never known so many rare types of vegetable diseases being destructive in this State'.

Dr. G. P. Clinton and Miss Nellie A. Brown have commented on the unusual prevalence of bacterial diseases this year.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Decree of 30 September 1932, which came into force on 15 October 1932, with a view to preventing the introduction of *Tortrix promubana* the importation of carnations (cut flowers) is forbidden until further notice during the period from 15 March to 30 November of each year. (*Reichsgesetzblatt*, Teil I, Berlin, 10. Oktober 1932, Nr. 68, S. 492).

* * By Decree of 7 October 1932 the importation and transit of the Colorado beetle [*Leptinotarsa decemlineata*], alive, and at any stage of the life history, are forbidden. (*Reichsgesetzblatt*, Teil I, Berlin, 22. Oktober 1932, Nr. 69, S. 496).

England. — By the Apple Capsid (Essex) Order of 1932, which came into operation on 1 November 1932, the Minister of Agriculture and Fisheries orders as follows :—

(1) Any person other than a private grower (a person who does not grow fruit for sale or does not receive upon his premises Apple trees or Gooseberry or Currant bushes for sale) who receives within the district (the administrative county of Essex or the County Borough of East Ham, Southend-on-Sea, or West Ham, or the Borough of Colchester, Ilford, Leyton or Walthamstow as the case may be) any Apple trees or Gooseberry or Currant bushes for planting or for sale for planting shall notify the fact by post or otherwise to the Local Authority for the district within fourteen days from the date of the receipt thereof.

(2) An officer appointed by the Local Authority for the purpose of this Order (hereinafter called 'the appointed Officer'), upon production if so required of his appointment, may at all reasonable times enter upon any premises in the district and examine any Apple trees or Gooseberry or Currant bushes thereon, and the occupier of the premises shall give to him all reasonable facilities for carrying out the examination.

(3) The Local Authority on being satisfied by a report from the appointed Officer that the Apple Capsid (*Plesiocoris rugicollis*) exists on any Apple trees or Gooseberry or Currant bushes on any premises within the district (a) may serve upon the occupier of the premises a Notice requiring him within such time as may be prescribed in the Notice to treat the Apple trees or Gooseberry or Currant bushes in such manner as may be prescribed in the Notice. (b) Nothing in this Order shall prevent the occupier of premises, upon whom a Notice has been served under subparagraph (a) hereof, completely destroying by fire or otherwise any Apple trees or Gooseberry or Currant bushes in respect of which a Notice has been served upon him, and if he does so destroy them he shall be deemed to have complied with the Notice. (c) Where a Notice has been served under subparagraph (a) hereof, the appointed Officer shall, if so directed by the Local Authority, ascertain whether the Notice has been complied with.

(4) The Local Authority shall furnish to the Ministry a report of any action taken by it under this Order, together with a copy of any Notice served under Article 3 (a) hereof. (*The Gardeners' Chronicle*, London, November 5, 1932, Third Series, Vol. XCII, No. 2393, p. 332).

Australia (Commonwealth of). — By Quarantine Proclamation No. 215 of 5 May 1932 it is forbidden to import into Australia plants of the genus *Humulus* coming from any country whatever. Importation is authorised, however, of the flower parts known commercially as hops provided that they come from a country where the downy mildew [*Pseudoperonospora Humuli*] or the mosaic are not known to occur. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Augustheft, S. 1692).

Spain. — By 'Orden' of 6 October 1932 authorisation has been granted from the 8th of the same month to 31 January 1933 for importation free of duty of potatoes for seed belonging to the early varieties 'Royal Kidney', 'Majestic', 'Paulsen Juli', 'Escocia', 'Red King', and of other foreign varieties which develop early in the potato growing regions of Spain, on the condition, *inter alia*, that consignments are accompanied by a sanitary certificate. (*Gaceta de Madrid*, Madrid, 8 octubre 1932, año CCLXXI, tomo VI, núm. 282, pág. 165).

France. — By Decree of 14 October 1932 modifications of the regulations contained in Art. 1 of the Decrees of 18 April and 23 May 1932 [see this *Bulletin* 1932, No. 5, p. 80 and No. 8, p. 133] may be granted as an exceptional and temporary measure by Inter-Ministerial Decree of the Ministers of Agriculture, Commerce and Industry and of the Budget. (*Journal Officiel de la République Française*, Paris, 20 octobre 1932, LXXIX^{ème} année, n° 246, p. 11227).

* * By Inter-Ministerial Decree of 19 October 1932 importation into France of rhizomes of lily of the valley grown in and coming from Germany is authorised as an exceptional measure until further order. (*Ibid.*, p. 11227).

* * By a Ministerial Decree of 2 November 1932 the provisions of article 1 of the Decree of 8 March 1932 [see this *Bulletin*, 1932 n° 4, p. 57] relating to measures for preventing the introduction of the San José scale (*Aspidiotus perniciosus*) into France are made applicable to consignments coming from Rumania.

The entry into and transit in France of fresh fruits coming from Rumania may take place only by the customs office of Kehl-Strasbourg. (*Journal Officiel de la République Française*, Paris, 5 novembre 1932, LXIV^{ème} année, n° 259, p. 11694).

Guatemala. — By Decree of 4 June 1932 the phytosanitary certificates established by Decree of 29 August 1919 will no longer be required in the case of flower and vegetable seeds sent in small quantities through the post.

For every other consignment, including potatoes for food or seed, the consuls of Guatemala will require the presentation of phytosanitary certificates before the customary permit can be issued. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 1. Septemberheft, S. 1864).

Italy. — Ministerial Circular No. 290 of 8 September 1932 contains the rules to be observed in the exportation of plants, plant parts and fruits to Austria, in conformity with Decree No. 222 of 18 July 1932 which came into force in the Republic of Austria on 16 September 1932. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 1^o ottobre 1932, anno IV, n. 19, pp. 2861-2863).

* * By Ministerial Decree of 16 September 1932 the commune of Fondi in the province of Rome has been declared infected with grape phylloxera. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 27 settembre 1932, anno 73^o, n. 224, p. 4304).

* * A Ministerial Decree of 30 September 1932 provides new special regulations concerning exportation of cauliflowers. It is forbidden to export cauliflowers having the inflorescence attacked by parasites or damaged by frost or having the stalk blackened and beginning to rot. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 13 ottobre 1932, anno 73^o, n. 238, pp. 4563-4566).

Morocco (French Zone). — By Decree of the Director of Waters and Forests, dated 17 September 1932, owners or holders of land in the territory of Ouezzan (region of Fez) are authorised to destroy wild boars on their land at any time and by any means except fire. Boars killed in these conditions may not however be transported, hawked or marketed. This Decree will carry effect until the last day of the close season of 1933. (*Empire Chérifien. Protectorat de la République Française au Maroc. Bulletin Officiel*, Rabat, 30 septembre 1932, XXI^{ème} année, n^o 1040, p. 1138).

* * A Decree of the Director General of Agriculture, Commerce and Land Settlement, dated 29 September 1932, contains *inter alia* the provision that potatoes exported to France or Algeria under the quota agreement shall be free from cryptogamic diseases. (*Ibid.*, p. 1129-1130).

* * By a further Decree of the Director General of Agriculture, Commerce and Land Settlement, also dated 29 September 1932, tomatoes exported to France or Algeria under the quota agreement must be free from cryptogamic diseases. (*Ibid.*, p. 1130-1131).

* * A Decree of the Director General of Agriculture, Commerce and Land Settlement, dated 28 September 1932, provides for the organization of circumscribed areas for purposes of crop protection and indicates the officials of the General Administration of Agriculture, Commerce and Land Settlement who will be responsible for the plant protection policy in the French zone of the

Sherifian Empire. (Empire Chérifien. Protectorat de la République Française au Maroc. *Bulletin Officiel*, Rabat, 7 octobre 1932, XXI^{ème} année, n° 1041, pp. 1159-1160).

Tunis (Regency of). — A Decree of 11 July 1932 (9 rabia I 1351) contains *inter alia* the following regulations : —

The Director General of Agriculture, Commerce and Land Settlement shall determine by Order the list of plant and animal parasites that are a danger to crops and to which shall apply the measures contained in the present Decree.

It is forbidden to introduce, transport or hold in possession in a live state and in any form whatever, any of the plant and animal parasites included in the list referred to above.

Importation, circulation and transit are forbidden of : —

(1) All plants or aerial or underground parts of plants in a live state if contaminated with one of the parasites included in the said list ;

(2) Packages having been used for the transport of such plants or parts of plants ;

(3) All other objects or products capable of carrying or spreading these parasites.

To be admitted for importation, subject to the conditions contained in Arts. 3, 4 and 6 of the Decree of 5 July 1924, plants or parts of plants coming from a country which has signed the International Convention of Rome of 16 April 1929 [see this *Bulletin*, 1929, No. 4, pp. 50-55], shall be : —

(1) Accompanied by a certificate of health and origin conforming to the model annexed to the International Convention of Rome ;

(2) Submitted to sanitary inspection by an official appointed for the purpose by the Director General of Agriculture, Commerce and Land Settlement.

Plants or parts of plants coming from a country which has not signed the International Convention of Rome shall be : —

(1) Accompanied by a certificate issued by the competent authority or Service of the country of origin and endorsed by the French Consular authority of the country stating that the consignment is free from the parasites specified in the Order referred to above ;

(2) Submitted to sanitary inspection.

The official responsible for the sanitary inspection will verify the validity of the certificate, examine the consignment and, if it is free from parasites, issue a permit to the Customs Office.

If a consignment is not accompanied by a certificate or if its examination reveals the presence of a parasite, the official responsible for inspection has the authority to order the return or destruction, according to the wish of the consignee or his representative, or disinfection of the plants, but at Tunis only.

Orders of the Director General of Agriculture may authorise, without certificate or sanitary inspection, importation of specimens of plant diseases and pests and of infected plants which present no danger by reason of either their nature or their utilisation.

Owners or occupiers of urban or rural property are required to inform the administrative authority of their district of any abnormal condition, destruction or damage caused to crop plants on their property by parasites which are or threaten to be of an epidemic nature.

Holders in any condition whatever of living plants or plant parts are required to make similar declarations.

Such declarations will be transmitted immediately by the administrative authority to the Director General of Agriculture.

Officials of the technical staff of the General Administration of Agriculture, Commerce and Land Settlement and any person undertaking official biological studies, whenever they shall ascertain the presence of plant parasites, whether as a result of field observations or laboratory research, are required immediately to inform the Director General of Agriculture, indicating the land where the parasites were observed or from which specimens were taken.

If such information or research leads to establishing the presence of any of the parasites included in the above-named list, the Director General of Agriculture may fix by Order : —

(1) The limits of the infected zone, comprising the localities and land where the presence of the parasite has been ascertained together with a circum-jacent safety zone ;

(2) The measures and treatments necessary to prevent or check the development of the invasion.

Within the zones so delimited owners or occupiers are required to carry out the prescribed measures.

The State, communes and public establishments are under the same obligations as private persons on property they hold.

In case of the owners or holders failing to execute the measures and treatments prescribed these operations will be carried out officially at the expense of the persons concerned, without prejudice to the penalties prescribed by the present Decree.

Owners or occupiers must allow the entry of the officials authorised to carry out the prescribed measures.

The sum of the expenses is recoverable in conformity with the Decree of 28 December 1900.

No indemnity is payable for damages of any nature which may result from the execution of the prescribed measures.

When however the execution of these measures entails destruction within the safety zone of plants which are not infected but whose destruction is necessary to avoid the spread of the disease, compensation may be granted to the rightful claimants.

Establishments such as nursery gardens, gardens or other horticultural land regularly used for the production of or commerce in plants or plant parts intended for propagation purposes (plants, layers, cuttings, slips for grafting, bulbs, tubers, seeds, etc.) will be submitted to a sanitary control comprising one or more inspections annually by officials in charge of plant sanitary control.

Owners or occupiers of any sort of establishments submitted to such sanitary control must inform the General Administration of Agriculture, Commerce and Land Settlement between 1 November and 31 December of each year, on paper not requiring a Government stamp, that they are engaged in the production of or commerce in the products specified above and state the exact position of the crops, their acreage and the kind of plants grown.

Owners or occupiers of such establishments must carry out all the preventive or control measures prescribed by the officials in charge of plant sanitary control.

Certificates of healthy condition and origin will be issued by the officials in charge of plant sanitary control :—

(1) For exportation of plants originating from crops submitted to sanitary control, on condition that all the prescribed preventive and control measures have been carried out. The issue of the certificate may be subject also to previous inspection of the consignments.

(2) For exportation of plants originating from crops not submitted to sanitary control, after previous inspection. (*Journal Officiel Tunisien*, Tunis, 7 septembre 1932, 50^e année, n^o 72, p. 2019-2021).

Yugoslavia. — In Letter No. 12310/II of 4 March 1932, the Ministry of Agriculture states as follows the regulations relating to the control of the importation and transit of flowers:—

(1) Consignments of flowers passing through the country accompanied by an official phytosanitary certificate will not be inspected if carried in closed wagons.

(2) Flowers imported into the country will be inspected only in exceptional cases when it is necessitated by serious reasons. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 1. Augustheft, S. 1603-1604).

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DE URRÍES Y AZARA, MANUEL J. Datos sobre micromicetos de la provincia de Huesca. *Boletín de la Sociedad Española de Historia Natural*, Madrid, 1932, tomo XXXII, núm. 4, págs. 213 a 229, figs. 1-5.

[List of 67 species, varieties and forms, certain of which are new to science. Diagnoses in Latin].

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DE ZULUETA, ANTONIO. El mundo de los insectos. (Libros de la Naturaleza). Madrid, Espasa-Calpe, S. A., 1932, 94 págs., 43 figs., 6 láms.

DUFRENOY, J. Maladie bactérienne du tabac dans le Sud-Ouest de la France. *Annales des Epiphyties*, Paris, 1932, 17º année, n° 6 (1931), p. 446-455, fig. 1-8, pl. I-III. Bibliographie, p. 455.
[*Bacterium Tabacum*].

FAES, H. Insectes et champignons parasites des arbres fruitiers. *Revue de Pathologie Végétale et d'Entomologie Agricole*, Paris, 1932, tome XIX, fasc. 3, p. 81-87.

[Winter treatment against *Hyponomeuta* spp., Coccids, *Phytoptus pyri*, *Cheimatobia brumata*, and *Exoascus deformans* in Switzerland].

FEYTAUD, J. Recherches sur le doryphore (*Leptinotarsa decemlineata* Say). Deuxième partie : Moyens de lutte. *Annales des Epiphyties*, Paris, 1932, 18^e année, nos 2 et 3, p. 97-220, fig. 1-15, pl. I-IV.

FINK, DAVID E. The digestive enzymes of the Colorado potato beetle and the influence of arsenicals on their activity. *Journal of Agricultural Research*, Washington, D. C., 1932, Vol. 45, No. 8, pp. 471-482. Literature cited, pp. 481-482. [*Leptinotarsa decemlineata*].

FLOR, H. H., GAINES, E. F., and SMITH, W. K. The effect of bunt on yield of wheat. *Journal of the American Society of Agronomy*, Geneva, N. Y., 1932, Vol. 24, No. 10, pp. 778-784. Literature cited, p. 784. [*Tilletia Tritici*, *T. levis*].

GANOSSIS, B. L'organisation de la lutte contre la mouche de l'olivier en Grèce. *Journal d'Agriculture Pratique*, Paris, 1932, 96^e année, n° 45, p. 386-387. [*Dacus oleae*].

GIMINGHAM, G. T. On the winter spraying of fruit trees in England. *Revue de Pathologie Végétale et d'Entomologie Agricole*, Paris, 1932, tome XIX, fasc. 3, p. 70-75. [References], p. 73-74. [With summary in French].

GINET, J. La bactériose du noyer. *Journal d'Agriculture Pratique*, Paris, 1932, 96^e année, n° 45, p. 381-383, fig. 1-2. [*Pseudomonas Juglandis* in the valley of the Isère].

GÓMEZ MENOR, JUAN. Algunos ligeidos de la República Dominicana. (Chinchorros de campo). *Revista de Agricultura y Comercio*, Santo Domingo, Rep. Dominicana, 1932, vol. XXIII, núm. 28, págs. 344 y 345, 3 figs.

[*Oncopeltus fasciatus* (= *O. aulicus*), *O. varicolor*, *Blissus leucopterus* (only a single specimen of this last has been taken by the writer), *Ischnorrhynchus championi*, *Nysius* spp.].

GONÇALVES CARNEIRO, JOÃO. As molestias mais graves do abacateiro e seus tratamentos. *Chacaras e Quintaes*, S. Paulo, 1932, Vol. XLVI, n. 4 (anno 23^o), pags. 423-426, figs. 1-3. Bibliographia, pag. 426.

[*Colletotrichum gloeosporioides*, *Oidium* sp., *Sphaceloma* sp., *Fusarium* sp., *Pestalotzia* sp., *Cladosporium* sp., *Hendersonia* sp., *Diplodia natalensis*, *D. Theobromae*].

GREEN, D. E. Contributions from the Wisley Laboratory. LXIV. — Smut disease of dahlias caused by *Entyloma dahliae* (Sydow). *The Journal of the Royal Horticultural Society*, London, 1932, Vol. LVII, Pt. 2, pp. 332-339, figs. 110-118.

GREGOR, MARY J. F. A study of heterothallism in *Ceratostomella pluriannulata*, Hedgcock. *Annales Mycologici*, Berlin 1932, Vol. XXX, No. 1/2, S. 1-9, Fig. 1-4.

[In English, with summary in German].

GREGORY, P. H. The *Fusarium* bulb rot of Narcissus. *The Annals of Applied Biology*, London, 1932, Vol. XIX, No. 4, pp. 475-514, figs. 1-2, pls. XXVII. References, pp. 513-514.

[*Fusarium bulbigenum*].

GURSKI, J. H., i MYSLAKOWSKI, K. Wpływ głębokości przykrycia na kiełkowanie nasion niektórych chwastów. *Doświadczałnictwo Rolnicze*, Warszawa 1932, rok VII, tom VII, cz. IV, str. 56-64. Literatura, str. 63-64.

[In Polish, with title and summary in French:— Influence de l'épaisseur de la couverture sur la germination de la graine de mauvaises herbes].

HAMILTON, MARION A. On three new virus diseases of *Hyoscyamus niger*. *The Annals of Applied Biology*, London, 1932, Vol. XIX, No. 4, pp. 550-567, pls. XXVIII-XXX. References, p. 567.

[These three diseases are described under the names of *Hyoscyamus virus* (Hy.) II, III and IV].

HIEKE, F. Die Rosterkrankungen der Getreides. *Landwirtschaftliche Fachpresse für die Tschechoslowakei*, Tetschen 1932, 10. Jahrg., Nr. 47, S. 299.

[*Puccinia graminis*, *P. triticea* and, less seriously, *P. glumarum*].

HOCKENYOS, GEO. L., and IRWIN, GEO. R. Studies on Bordeaux deposition. *Phytopathology*, Lancaster, Pa., 1932, Vol. 22, No. 10, pp. 857-860.

HOLMES, FRANCIS O. Movement of mosaic virus from primary lesions in *Nicotiana tabacum* L. *Contributions from Boyce Thompson Institute*, Menasha, Wisconsin, 1932, Vol. 4, No. 3, pp. 297-322, figs. 1-6. Literature cited, p. 322.

HOLMES, FRANCIS O. Symptoms of tobacco mosaic disease. *Contributions from Boyce Thompson Institute*, Menasha, Wisconsin, 1932, Vol. 4, No. 3, pp. 323-357, figs. 1-9. Literature cited, p. 357.

HOPKINS, J. C. E. Some diseases of cotton in Southern Rhodesia. *The Empire Cotton Growing Review*, London, 1932, Vol. IX, No. 2, pp. 109-118. References, p. 118.

[*Bacterium Malvacearum*, *Nematospora Coryli*, *Rhizopus stolonifer*, *Epicoccum purpurascens*, *Bacterium* 823, *Alternaria gossypina*, *A. macrospora*, *Phyllosticta gossypina*, *Rhizoctonia Solani*, *Glomerella Gossypii*, etc.].

HUGUES, ALBERT. Les invasions de sangliers dans le Midi de la France. *Bulletin de la Société Nationale d'Acclimatation de France*, Paris, 1932, 79^e année, n^o 10, p. 449-461.

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[*Plasmopara viticola*].

HUTSON, J. C. Some insect pests of tea in Ceylon. Nettle grubs. Parts I-II. *The Tropical Agriculturist*, Peradeniya, Ceylon, 1932, Vol. LXXXVIII, No. 4, pp. 189-210, pls. I-IV; No. 5, pp. 255-286, pls. V-VIII. References, pp. 285-286.

[*Natada nararia*, *Parasa lepida*, *Narosa conspersa*, *Thosea cervina*, *T. recta*, *T. cava*, *Spatulicraspeda castaneiceps*, *Scopelodes venosa*, *Belippa laleana*].

IMMS, A. D. Observations on some parasites of *Oscinella frit* Linn. Part II. *Parasitology*, London, 1932, Vol. 24, No. 3, pp. 440-447, figs. 1-2. References, p. 447.

[*Rhoptromeris eucera*, *Loxotropa tritoma*, *Halticoptera fuscicornis*, *Callitula bicolor*].

IVANOFF, B. Neue parasitische Pilze Bulgariens. *Bulletin de la Société Botanique de Bulgarie*, Sophia, 1932, vol. V, pp. 82-83.

[In Bulgarian, with title also in German. List of 17 Micromycetes new for Bulgaria].

JACOBI, E. F. De verschillen tusschen de larven van *Lygus pabulinus* en *Plesiocorus rugicollis*. *Tijdschrift over Plantenziekten*, Wageningen 1932, 38e jaarg., 10e aflev., blz. 213-219, fig. 1-7. Literatuur, blz. 219.

JENKINS, ANNA E., and WHITE, R. P. Identification of *Diaporthe umbrina* on rose from England. *Mycologia*, Lancaster, Pa., 1932, Vol. XXIV, No. 6, pp. 485-488, pls. 18-19.

[The identification of the fungus observed at Cheltenham, Gloucestershire, as *D. umbrina* constitutes the first record of the presence in Europe of this serious parasite of the rose].

JOESSEL, P. H., Quelques observations sur les traitements à envisager pour l'abricotier et le pêcher dans la vallée du Rhône. *Revue de Pathologie Végétale et d'Entomologie Agricole*, Paris, 1932, tome XIX, fasc. 3, p. 88-105, pl. III. Bibliographie, p. 103-105.

[*Taphrina deformans*, *Clasterosporium carpophilum*, *Sclerotinia cinerea*, *Anuraphis amygdali*, *Myzus persicae*, *Hyalopterus arundinis*, *Neurotoma nemoralis*, *Cheimatobia brumata*, *Hybernia defoliaria*, *Lymantria dispar*, *Diaspis leperii*].

JOESSEL, P.-H., et BORDAS, J. Recherches sur les dépérissements de l'abricotier dans la vallée du Rhône (1927 à 1930). *Annales des Epiphyties*, Paris, 1932, 17^e année, n^o 5 (1931), p. 325-361, fig. 1-5, 1 carte, pl. I-VII. Bibliographie, p. 360-361.

[In certain cases the decay would seem to be definitely due to: - (1) physiological causes, such as drought; (2) insects, amongst which in the valley of the Lower Rhône, *Capnodis tenebrionis* plays a particularly active part; (3) root rot (*Armillaria mellea*). The cause of a number of other cases has not yet been determined with certainty. The writers consider it probable that a large part may be attributed to the browning of the wood, which generally starts from dead parts left on the tree, or from injuries made in the nursery or during pruning or tillage operations].

JOHNSON, ETHELBERG. The puncture vine in California. *University of California. College of Agriculture. Agricultural Experiment Station, Berkeley, California. Bulletin* 528, Berkeley, California, 1932, 42 pp., 11 figs. Literature cited, pp. 40-42. [*Tribulus terrestris*].

KERR, H. W. Rat control in sugar-cane fields. *Queensland Agricultural Journal*, Brisbane, 1932, Vol. XXXVII, Pt. 6, pp. 299-300.

KLEIN, H. Z. Studien zur Ökologie und Epidemiologie der Kohlweisslinge. I. Der Einfluss der Temperatur und Luftfeuchtigkeit auf Entwicklung und Mortalität von *Pieris brassicae* L. *Zeitschrift für angewandte Entomologie*, Berlin 1932, Bd. XIX, Heft 3, S. 395-448, Abb. 1-10. Literatur, S. 447-448.

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KOLLER, RAPHAEL. Das Rattenbuch. Ein Sammelbericht über die wirtschaftliche und hygienische Bedeutung der Rattenplage und über die Bekämpfung der Ratten. Hannover, Verlag von M. & H. Schaper, 1932, XI + 160 S., 10 Abb. Literatur, S. 154-156.

KUNKEL, L. O. Celery yellows of California not identical with the Aster yellows of New York. *Contributions from Boyce Thompson Institute*, Menasha, Wisconsin, 1932, Vol. 4, No. 3, pp. 405-414, figs. 1-2. Literature cited, p. 414.

[Virus disease].

LANDUCCI, VASCO. Esperienze sulla lotta contro la moria dei semenzali. *L'Alpe*, Firenze, 1932, anno XIX, n. 10, pp. 359-367, 8 figg.

[*Fusarium* spp., *Pythium De Baryanum*, *Rhizoctonia* spp., *Pestalozzia Hartigii*, *Phytophthora omnivora*].

LE CLERG, E. L. Leaf temperature of lettuce and its relation to tipburn. *Phytopathology*, Lancaster, Pa., 1932, Vol. 22, No. 10, pp. 851-854. Literature cited, p. 855.

[The cause of the disease called tipburn is not yet determined].

LEHMANN, HANS. Wanzen (Hemiptera-Heteroptera) als Obstbaumschädlinge. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1932, 42. Jahrg., Heft 9, S. 440-451, Abb. 1-4. Literaturverzeichnis, S. 451.

[The following species are particularly serious in Germany: *Tropicoris rufipes*, *Stephanitis pyri*, *Plesiocoris rugicollis*, *Calocoris biclavatus*, *Lygus pabulinus*, *L. pratensis*].

LENDNER, ALF. La maladie des ormeaux. *Revue Horticole Suisse*, Genève, 1932, 5^e année, n^o 11, p. 241-247, fig. 1-6. Bibliographie, p. 247.

[According to the observations made by the writer in Geneva the disease of young elms is due primarily to a bacterium (probably *Pseudomonas lignicola* Westerdijk) and secondarily to a fungus (*Graphium Ulmi* Schwarz = *Ceratostomella Ulmi* Buisman)].

LEPLAE, EDM. A propos des maladies du coton dans l'Uélé. Le Black Arm au Soudan égyptien. *Agriculture et Elevage au Congo Belge*, Bruxelles, 1932, 6^{me} année, n^o 15, p. 169-171, 2 fig.

[*Bacterium Malvacearum*].

LESTER-SMITH, W. C. Citrus mildew. *Phytopathology*, Lancaster, Pa., 1932, Vol. 22, No. 10, p. 870.

[Reports *Oidium tingitaninum* on various species of *Citrus* in Ceylon].

LINK, GEORGE K. K., and RAMSEY, GLEN B. Market diseases of fruits and vegetables. Potatoes. *United States Department of Agriculture. Miscellaneous Publication No. 98*, Washington, D. C., 1932, 62 pp., 15 pls. Literature cited, pp. 53-62.

[*Alternaria Solani*, *Armillaria mellea*, *Bacillus carotovorus*, *B. Aroideae*, *B. mesentericus*, black-heart, *B. phytophthorus*, *Bacterium Solanacearum*, chemical (salt) injury, drought and heat necrosis, enlarged lenticels, freezing injury, *Fusarium* spp., greening (sunburn), growth cracks, knobbiness, and second growth, hollow heart, immaturity, internal brown rot, *Rhizoctonia Solani*, *Phytophthora infestans*, *Pythium De Baryanum*, net necrosis, *Phyt. erythroseptica*, *Spongopora subterranea*, *Rhizopus* spp., *Caconema radicola*, *Actinomyces Scabies*, *Sclerotium Rolfsii*, *Spondylocadium atrovirens*, spindle tuber, *Verticillium albo-atrum*, *Rhizoctonia Crocorum*, *Synchytrium endobioticum*].

LOPEZ, A. W. Research progress on locust situation. An extract from the monthly letter of the Research Bureau, Philippine Sugar Association. *Sugar News* Manila, P. I., 1932, Vol. XIII, No. 7, pp. 434-437.

[Text also in Spanish].

MANZONI, L. Numero dei trattamenti antiperonosporici e concentrazione in rame delle poltiglie. *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monf., 1932, anno 78° e 58°, n. 43, pp. 458-463.

[*Plasmopara viticola*].

MARTÍNEZ MARTÍNEZ, MIGUEL. Contribución al estudio de las Digitales (7ª nota). *Boletín de la Sociedad Española de Historia Natural*, Madrid, 1932, tomo XXII, núm. 4, págs. 205 a 212, figs. 1-4. Bibliografía, págs. 211 y 212.

[Enumerates the parasitic and saprophytic fungi of *Digitalis* spp., treating in special detail *Ramularia variabilis*, which is the most serious parasite].

MONTEMARTINI, L. Funghi agrumicoli dell'Asmara. *Bollettino di Studi ed Informazioni del R. Giardino Coloniale di Palermo*, Palermo, 1932, vol. XII, pp. 1-3, figg. 1-2.

[*Colletotrichum gloeosporioides* on leaves of bitter oranges and probably also on those of sweet oranges and of *Citrus maxima*; *Cladosporium*, related to *Cl. herbarum* or belonging to the same group, on the rind of sweet oranges at Cheren, Eritrea].

MONTEMARTINI, LUIGI. Le ruggini del grano in Sicilia. (Constatazioni e problemi). *Il Naturalista Siciliano*, Palermo, 1932, anno XXVIII, n. ser., vol. 8°, pp. 21-23.

[After an account of the species of *Puccinia* most frequent on wheat in Sicily (*P. triticea* and *P. glumarum*) follow observations on the varying susceptibility of the wheats grown and on the diffusion of the disease and the action of external and internal factors on it].

MORRIS, H. M. Insect pests and fungus diseases of Cyprus and their control. *Agricultural Department, Cyprus. Bulletin No. 3 (Entomological Series)*, Nicosia, 1932, 56 pp., 12 figs.

MUGGERIDGE, J. Spread of *Pieris rapae* butterfly and progress of parasite work. *The New Zealand Journal of Agriculture*, Wellington, 1932, Vol. 45, No. 3, pp. 132-135, figs. 1-3.

[*P. rapae* and its parasite *Apanteles glomeratus*].

MURILLO, LUIS MARÍA. El Archipiélago de San Andrés desde el punto de vista de sus industrias y de su sanidad vegetal. *Boletín de Agricultura*, Bogotá, 1932, año V, núms. 1 y 2, págs. 55 a 70, 5 figs.

[Indicates the pests (particularly scale insects) and diseases of the coconut].

MURILLO, LUIS MARÍA. Recolección y conservación de insectos durante las excursiones. *Boletín de Agricultura*, Bogotá, 1932, año V, núm. 7, págs. 472 a 475, 1 fig.

[Reports, *inter alia*, *Xyleborus cuneatus*, *X. monachus* (?), *Euwallacea* sp., *Captothorus* sp., *Thione championi* as injurious to the cacao and *Trypopermnon* sp. as injurious to the potato in Columbia].

MUSKETT, ARTHUR E., and CAIRNS, HUGH. The effect of seed disinfection upon the oat crop in Northern Ireland. *The Annals of Applied Biology*, London, 1932, Vol. XIX, No. 4, pp. 462-474. References, p. 474.

[*Ustilago* spp.].

NAPPER, R. P. N. A scheme of treatment for the control of *Fomes lignosus* in young rubber areas. *Journal of the Rubber Research Institute of Malaya*, Kuala Lumpur, 1932, Vol. 4, No. 1, pp. 34-38.

NAPPER, R. P. N. Observations on the root disease of rubber trees caused by *Fomes lignosus*. *Journal of the Rubber Research Institute of Malaya*, Kuala Lumpur, 1932, Vol. 4, No. 1, pp. 5-33, 1 diagr. Bibliography, pp. 32-33.

NEUWEILER, E. Der Kartoffelkrebs in der Schweiz. *Landwirtschaftliches Jahrbuch der Schweiz*, Bern 1932, XLVI. Jahrg., Heft 5, S. 680-688, 1 Karte.
[*Synchytrium endobioticum* during the years 1925-1931].

NEWMAN, L. J. The pea weevil (*Bruchus pisorum*, Linn.). *Journal of the Department of Agriculture, Western Australia*, Perth, 1932, Vol. 9 (Second Series), No. 2, pp. 297-300, figs. 1-2.
[Until recently *B. pisorum* had not been recorded in Western Australia].

NEWMAN, L. J., and WOMERSLEY, H. Clover springtail (lucerne flea) (*Sminthurus viridis*) investigation. *Journal of the Department of Agriculture, Western Australia*, Perth, 1932, Vol. 9 (Second Series), No. 2, pp. 289-290, 1 fig.
[Reports the discovery of *Biscirus lapidarius*, a predator of *S. viridis*].

OPPI, ERCOLANO. Va bene il polisolfuro di calcio contro le cocciniglie del pesco? *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monf., 1932, anno 78° e 58°, n. 43, pp. 455-458.
[Lime sulphur was found to have little effect against *Diaspis leperii*].

PAGLIANO. La lutte contre le pou rouge. Les huiles blanches. *Bulletin de la Société d'Horticulture de Tunisie*, Tunis, 1932, 30^e année, n° 291, p. 155-158.
[White oils against *Chrysomphalus minor*].

PALM, B. T. A note on *Entyloma Dahliae* Syd. from Sumatra and Guatemala. *Phytopathology*, Lancaster, Pa., 1932, Vol. 22, No. 10, pp. 868-869.

PALM, B. T. *Eriodendron* as host of *Bacterium malvacearum*. *Phytopathology*, Lancaster, Pa., 1932, Vol. 22, No. 10, pp. 867-868.
[*Eriodendron anfractuosum*].

PESCOTT, R. T. M. The cherry borer moth. A serious pest to street trees. *The Journal of the Department of Agriculture, Victoria, Australia*, Melbourne, 1932, Vol. XXX, Pt. 10, pp. 487-488, 495, figs. 1-[6]. References, p. 495.
[*Maroga unipunctata* on *Ulmus campestris*, *Platanus orientalis* and *Salix babylonica*].

PETCH, T. Some Philippine entomogenous fungi. *Annales Mycologici*, Berlin 1932, Vol. XXX, No. 1/2, S. 118-121.
[List of 11 species, of which 2 are new to science. Diagnoses in Latin are given of these last].

PETHYBRIDGE, GEO. H., and KENNETH, M. SMITH. A suspected virus disease of Zonal Pelargoniums. *The Gardeners' Chronicle*, London, 1932, Third Series, Vol. XCII, No. 2395, pp. 378-379, figs. 189-190.
[In England].

PETIT, GABRIEL. 2^e Conférence Internationale et Congrès Colonial du Rat et de la Peste. Paris, 7-12 octobre 1931. Documents réunis et publiés par le Professeur Gabriel Petit, Secrétaire général. Paris, Vigot frères, éditeurs, 1932, 650 p., 81 portraits, 35 vues diverses.

[The contents of this volume include communications relating more particularly to rats and agriculture (pp. 536-559)].

PETRI, I. Alcune osservazioni sopra i trattamenti invernali agli alberi da frutto. *Revue de Pathologie Végétale et d'Entomologie Agricole*, Paris, 1932, tome XIX, fasc. 3, p. 76-77.

[With summary in French].

PITTMAN, H. A. Brown rot of citrus. A serious disease that can be easily prevented. *Journal of the Department of Agriculture, Western Australia*, Perth, 1932, Vol. 9 (Second Series), No. 2, pp. 286-289. Literature cited. p. 289.

[*Phytophthora citrophthora*].

PORTER, D. R. Some environmental relations of watermelon wilt. *Phytopathology*, Lancaster, Pa., 1932, Vol. 22, No. 10, pp. 813-825, figs. 1-3. Literature cited, p. 825.

[*Fusarium nivium*].

PRICE, W. C. Acquired immunity to ring-spot in Nicotiana. *Contributions from Boyce Thompson Institute*, Menasha, Wisconsin, 1932, Vol. 4, No. 3, pp. 359-403, figs. 1-9. Literature cited, pp. 402-403.

[Virus disease].

RABIEN, H. Beitrag zur Frage der Schädigung des Saatgutes durch Trockenbeizen. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1932, 12. Jahrg., Nr. 8, S. 61-62, 1 Abb.

RAMMUL, P. Kodumaa põldhiired ja nende sünnitatus kahjustused. Die Wühlmäuse Eestis und die durch sie verursachten Schädigungen. *Agronomiam*, Tartu 1932, XII aastakäik, Nr. 7/8, lk. 218-224, joon. 1. Tarvitatus kirjandust, lk. 224.

[In Estonian, with title also in German. *Microtus arvalis*, *M. agrestis*, *Eutamias glareolus*, *Arvicola terrestris*, *Apodemus flavicollis*, *A. agrarius*, *Micromys minutus*, *Mus spicilegus*].

RAMMUL, P. Põldhiirte tõrje. Die einheimischen Feldmäuse und ihre Bekämpfung. *Agronomiam*, Tartu 1932, XII aastakäik, Nr. 9, lk. 280-289. Tarvitatus kirjandus, 1. 289.

[In Estonian, with title and summary also in German. *Microtus arvalis*, *Arvicola terrestris*, *Mus spicilegus*].

REINBOTH, GERHARD. Die Pflanzenkrankheits-Bekämpfung in Ligurien. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1932, 42. Jahrg., Heft 9, S. 468-470.

RINALDI CERONI, RINALDO. Il piretro. Prove sperimentali di coltivazione e della sua azione. *L'Italia Agricola*, Roma, 1932, anno 69, n. 10, pp. 917-933, 6 figg. Bibliografia, p. 933.

[*Chrysanthemum cinerariaefolium*].

ROBERTSON, H. F., and THEIN, BA. The occurrence of water hyacinth (*Eichhornia crassipes*, Solms) seedlings under natural conditions in Burma. *Agriculture and Live-stock in India*, Calcutta, 1932, Vol. II, Pt. IV, pp. 383-390, figs. 1-3, pls. XIV-XV. References, p. 390.

RODENHISER, H. A. Heterothallism and hybridization in *Sphacelotheca sorghi* and *S. cruenta*. *Journal of Agricultural Research*, Washington, D. C., 1932, Vol. 45, No. 5, pp. 287-296, figs. 1-5, pls. 1-3. Literature cited, pp. 295-296.

SALMON, E. S., and WARE, W. M. The chlorotic disease of the hop. III. *The Annals of Applied Biology*, London, 1932, Vol. XIX, No. 4, pp. 518-528. References, p. 528.

[Virus disease].

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NOTES

The Mycological Society of America. — The Mycological Section of the Botanical Society of America, Brooklyn, New York, formed a new society, the Mycological Society of America. The officers of the new organization are : President, W. H. Weston, Jr. ; Secretary-Treasurer, H. M. Fitzpatrick, and Councilors, H. S. Jackson, C. R. Orton and Neil E. Stevens.

Vth International Entomological Congress. — This Congress will be held in 1935 at Madrid and the President will be Professor Ignacio Bolívar y Urrutia, Director of the National Natural Science Museum in Madrid.

International Competition for a Method of Controlling the Root Rot of Citrus Trees. — The last date for entering this competition organised by the 'Camera Agrumaria' of Messina, Italy [see this *Bulletin*, No 7, p. 136] has been postponed to 31 March 1933.

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MARCH: World supplies and requirements of wheat, 161-S. — Rice, 182-S. — Sugar, 188-S. — Vines, 192-S. —

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January: page 8-S.

February: 93-S.

March: 174-S, 207-S, 209-S.

April: 241-S, 284-S, 286-S.

May: 330-S, 371-S, 373-S.

June: 422-S, 458-S, 459-S, 471-S.

July: 500-S, 541-S, 542-S, 556-S.

August: 592-S, 634-S.

September: 671-S.

October: 760-S.

November: 858-S.

December: 935-S.

2. MAIZE.

January: page 23-S.

February: 103-S.

March: 180-S, 209-S.

April: 258-S, 286-S.

May: 343-S, 373-S.

June: 436-S, 458-S, 459-S.

July: 514-S, 541-S, 542-S, 556-S.

August: 602-S, 634-S.

September: 677-S.

October: 780-S.

November: 866-S.

December: 944-S.

3. RICE.

January: page 26-S.

February: 106-S.

March: 185-S, 209-S.

April: 260-S, 284-S, 286-S.

May: 353-S, 373-S.

June: 439-S, 459-S.

July: 515-S.

August: 604-S.

September: *page* 680-S.
 October: 782-S.
 November: 867-S.
 December: 945-S.

4. POTATOES.

January: *page* 27-S.
 February: 108-S.
 March: 187-S, 207-S, 209-S.
 April: 261-S, 285-S, 286-S.
 May: 354-S, 371-S, 373-S.
 June: 440-S, 459-S, 471-S.
 July: 517-S, 541-S.
 August: 605-S, 634-S.
 September: 682-S.
 October: 785-S.
 November: 870-S.
 December: 947-S.

5. SUGAR.

January: *page* 34-S.
 February: 111-S.
 March: 190-S, 207-S, 209-S.
 April: 264-S, 285-S, 286-S.
 May: 357-S, 373-S, 375-S, 471-S.
 June: 442-S, 459-S.
 July: 523-S, 541-S.
 August: 610-S, 634-S.
 September: 687-S.
 October: 791-S.
 November: 875-S.
 December: 950-S.

6. VINES

January: *page* 40-S.
 February: 113-S.
 March: 199-S, 209-S.
 April: 272-S, 285-S, 286-S.
 May: 360-S, 372-S, 373-S.
 June: 446-S, 458-S, 459-S.
 July: 528-S, 556-S, 557-S.
 August: 612-S.
 September: 693-S.
 October: 795-S.
 November: 880-S.
 December: 954-S.

7. OLIVES.

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 February: 116-S.
 March: 199-S, 209-S.
 April: 274-S, 200-S.
 May: 363-S, 372-S, 373-S.
 June: 450-S, 459-S.
 July: 531-S, 556-S, 557-S.
 August: 614-S.
 September: 695-S.
 October: 797-S.
 November: 883-S.
 December: 956-S.

8. COTTON.

January: *page* 42-S.
 February: 117-S.
 March: 200-S, 208-S, 209-S.
 April: 275-S, 285-S, 286-S, 292-S.
 May: 363-S, 372-S, 373-S.
 June: 451-S, 459-S.
 July: 532-S.
 August: 615-S.
 September: 699-S.
 October: 801-S.
 November: 883-S.
 December: 959-S.

9. FLAX.

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 May: 366-S, 372-S, 373-S.
 June: 452-S, 459-S.
 July: 534-S, 541-S, 556-S.
 August: 621-S, 634-S.
 September: 702-S.
 October: 807-S.
 November: 886-S.
 December: 967-S.

10. HEMP.

January: *page* 45-S.
 February: 120-S.
 March: 202-S.
 April: 277-S, 285-S, 286-S.

May : *page* 366-S, 372-S, 373-S.
June : 453-S, 459-S.
July : 536 S.
August : 622-S.
September : 703-S.
October : 807-S.
November : 888-S.
December : 968-S.

II. HOPS.

January : *page* 47-S.
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April : 277-S, 285-S, 286-S.
May : 367-S, 372-S, 373-S.
June : 453-S, 459-S.
July : 536-S, 541-S.
August : 622-S.
September : 704-S.
October : 808-S.
November : 888-S.
December : 968-S.

12. TOBACCO.

January : *page* 46-S.
February : 120-S.
March : 202-S.
April : 278-S, 285-S, 286-S.
May : 367-S, 372-S, 373-S.
June : 454-S, 459-S.
July : 536-S, 541-S, 542-S.
August : 622-S.
September : 704-S.
October : 808-S.
November : 889-S.
December : 969-S.

13. CACAO.

January : *page* 47-S.
February : 124-S.
March : 203-S.
April : 280-S.
May : 367-S.
June : 454-S.
July : 537-S.
August : 623-S.
September : 705-S.
October : 809-S.
November : 890-S.
December : 970-S.

14. TEA.

January : *page* 49-S.
March : 204-S.
April : 281-S.
May : 368-S.
June : 456-S.
July : 538-S.
August : 624-S.
September : 707-S.
October : 810-S.
November : 891-S.
December : 972-S.

15. COFFEE.

January : *page* 49-S.
February : 125-S.
March : 205-S.
April : 281-S.
May : 368-S.
June : 457-S.
July : 538-S.
August : 624-S.
September : 707-S.
October : 810-S.
November : 892-S.
December : 972-S.

16. GROUNDNUTS.

January : *page* 50-S.
February : 126-S.
March : 205-S.
April : 282-S.
May : 368-S.
June : 457-S.
July : 539-S.
August : 625-S.
September : 708-S.
October : 811-S.
November : 892-S.
December : 972-S.

17. COLZA, SESAME AND MUSTARD.

January : *page* 50-S.
February : 126-S.
March : 206-S.

April : *page* 282-S.
 May : 369-S.
 June : 457-S.
 July : 540-S, 541-S.
 August : 625-S.
 September : 708-S.
 October : 811-S.
 November : 893-S.
 December : 973-S.

18. JUTE.

May : *page* 370-S.
 July : 540-S.
 August : 625-S.
 September : 709-S.
 October : 812-S.

19. SERICULTURE.

January : *page* 51-S.
 February : 127-S.
 March : 209-S.
 April : 285-S, 286-S.
 May : 370-S, 373-S.
 June : 458-S, 459-S.
 July : 540-S.
 August : 625-S.
 September : 709-S.
 October : 812-S.
 December : 974-S.

20. FODDER CROPS.

January : *page* 51-S.
 February : 127-S.
 March : 210-S.
 April : 287-S.
 May : 374-S.
 June : 460-S.
 July : 542-S.
 August : 626-S.
 September : 709-S.
 October : 812-S.
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 April, 288-S;
 July, 548-S.
 October, 816-S.
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 October 821-S.
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 Belgium July, 549-S.
 Canada January, 55-S.
 Chili September, 716-S.
 Denmark July, 549-S;
 August, 631-S;
 November, 904-S.
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 March, 213-S;
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 May, 382-S;
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 September, 714-S.
 Greece June, 465-S.
 Haiti October, 820-S.
 Hungary July, 550-S.
 Northern Ireland May, 380-S;
 September, 715-S.
 Kenya October, 822-S.
 Latvia December, 977-S.
 Luxemburg October, 817-S.
 Mexico July, 554-S.
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 April, 289-S;
 August, 632-S.
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 July, 554-S;
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2. CURRENT INFORMATION

ON LIVESTOCK AND DERIVATIVES.

January: *page* 58-S.
 February: 137-S.
 March: 213-S.
 April: 290-S.
 May: 391-S.
 June: 470-S.
 July: 555-S.
 August: 634-S.
 September: 717-S.
 October: 822-S.
 November: 906-S.
 December: 978-S.

3. STOCKS OF COTTON.

January: *page* 71-S.
 February: 150-S.
 March: 225-S.
 April: 305-S.
 May: 405-S.
 June: 482-S.
 July: 568-S.
 August: 647-S.
 September: 729-S.
 October: 384-S.
 November: 918-S.
 December: 989-S.

III. — TRADE AND STOCKS.

I. MONTHLY IMPORTS AND EXPORTS

(Wheat, wheat flour, total wheat and flour, rye, barley oats, maize, rice, cotton, linseed, tea, coffee, cacao, butter, cheese, wool).

January: *page* 61-S.
 February: 139-S.
 March: 215-S.
 April: 293-S.
 May: 394-S.
 June: 472-S.
 July: 558-S.
 August: 635-S.
 September: 719-S.
 October: 824-S.
 November: 908-S.
 December: 979-S.

2. STOCKS OF CEREALS.

January: *page* 69-S.
 February: 174-S.
 March: 223-S.

IV. — PRICES.

I. WEEKLY PRICES BY PRODUCTS AND MARITIME FREIGHTS.

a) prices: wheat, rye, barley, oats, maize rice (milled), linseed, cottonseed, cotton, bacon, butter, cheese, eggs (fresh)

b) maritime freights: shipments of wheat and maize, shipments of rice).

January: *page* 73-S, 87-S.
 February: 151-S, 155-S, 159-S.
 March: 227-S, 235-S.
 April: 308-S.
 May: 407-S.
 June: 484-S.
 July: 570-S.
 August: 649-S.
 September: 731-S.
 October: 836-S.
 November: 920-S.
 December: 991-S.

2. MONTHLY PRICES BY COUNTRIES.

January: *page* 77-S.
April: 313-S.
July: 575-S.
October: 841-S.

May: *page* 413-S.
June: 490-S.
July: 580-S.
August: 657-S.
September: 737-S.
October: 849-S.
November: 926-S.
December: 998-S.

3. PRICES IN GOLD FRANCS.

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April: 317-S.
August: 654-S.
October: 845-S.

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February: 135-S.
March: 226-S.
April: 320-S.
May: 412-S.
June: 489-S.
July: 579-S.
August: 656-S.
September: 736.
October: 848-S.
November: 925-S.
December: 996-S.

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March: 232-S.
April: 321-S.

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March: 235-S.
April: 319-S.
May: 406-S.
June: 483-S.
July: 583-S.
August: 648-S.
September: 736-S.
October: 835-S.
November: 923-S.
December: 990-S.

7. RECIPROCAL PARTIES
OF THE VARIOUS CURRENCIES.

January: *page* 88-S.
February: 160-S.
March: 236-S.
April: 324-S.
May: 416-S.
July: 584-S.
August: 660-S.
September: 740-S.
October: 852-S.

AGRICULTURAL SCIENCE AND PRACTICE

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